RA982
.B1C414

No. PA982.B1C714

GIVEN ~~BY~~
Stone & Webster

Boston Public Library

Do not write in this book or mark it with pen or pencil. Penalties for so doing are imposed by the Revised Laws of the Commonwealth of Massachusetts.

This book was issued to the borrower on the date last stamped below.

FORM NO. 609: 1,3,49: 200M.

DUPLICATE
BOOK No
SECTION

CITY OF BOSTON.

ARCHITECT DEPARTMENT, CITY HALL.

SPECIFICATIONS

FOR

ELECTRIC-LIGHT PLANT, ETC.,

FOR THE

BOSTON CITY HOSPITAL.

JANUARY, 1895.

BOSTON:
ROCKWELL AND CHURCHILL, CITY PRINTERS.
1895.

R.A982
.B7E714

RAC
B76

CITY OF BOSTON — TO CONTRACTORS.

Proposals for an Electric-light Plant, a Telephone System, a System of Electric Bells and Speaking-tubes for the Boston City Hospital, made in the form to be obtained at the office of the City Architect, City Hall, Boston, Mass., will be received at said office until 12 o'clock noon, Jan. 21, 1895, and at that time and place will be publicly opened and read. Plans may be seen and specifications and form of proposal and contract obtained at said office. Said Architect reserves the right to reject any or all proposals, or to accept the proposal he deems best for the City.

EDMUND M. WHEELWRIGHT,
City Architect.

PROPOSAL

FOR

AN ELECTRIC-LIGHT PLANT, A TELEPHONE SYSTEM, AND A SYSTEM OF ELECTRIC BELLS AND SPEAKING-TUBES FOR THE BOSTON CITY HOSPITAL.

To THE CITY ARCHITECT OF THE CITY OF BOSTON:

The undersigned, Contractor, hereby declares that ____ no person in the employ of said city is financially interested in this proposal or in the contract proposed to be taken; that ____ he has carefully examined the plans marked City of Boston, Electric Light Plant, Boston City Hospital, numbers 1 to 45 inclusive, and 49 to 69 inclusive, the form of contract for doing the work, and the specifications thereof, said plans, and contract, and specifications being on file in the office of said Architect; that ____ he has informed himself fully in regard to all conditions pertaining to the buildings where the said Electric-light Plant, etc., are to be set in place; that ____ to the satisfaction of said Architect, he will sign a contract in said form to install Electric-light Plant, etc., do all the work, and assume all responsibilities as set forth in said contract, and execute and deliver a bond to said City with two sureties in such sum as shall be determined by said Architect not exceeding one-half of the amount for which the contract shall be awarded, conditioned to faithfully carry out said contract, and that he will take in full

payment and satisfaction therefor the sum of

_____

_____

PUBLIC LIBRARY

dollars, increased or decreased in accordance with the terms of said contract. Accompanying, and as a part of, this proposal is a certified check for one thousand five hundred dollars ($1,500), made payable to the City of Boston to be returned if, on being notified by said Architect, of the date on which said contract will be ready for signatures, the undersigned shall appear at the office of said Architect within six days after said date, not including Sunday, sign the contract in triplicate, and execute and deliver to said Architect a bond for the proper execution of the work by the Contractor, in the sum of

dollars, with two sureties, all to the satisfaction of said Architect, and if the undersigned fail so to do, he shall be deemed to have abandoned the contract, and said sum shall thereupon be forfeited to, and thereafter be the property of, said City.

The sureties on said bond will be:

Full name of each surety.	Residence.

or _____ will contract to furnish any part of said work or materials as follows:

(1.) _____ will furnish and install the engine-room floor for the sum of _____ dollars ($ _____).

(2.) _____will furnish and install the engines and foundations for the sum of _____ dollars ($_____).

(3.) _____will furnish and install one of the engines and its foundation for the sum of_____

_____dollars ($_____).

(4.) _____will furnish and install one 90 horse-power simple engine and its foundation under the same general specifications as those for the 180 horse-power engines for the sum of

_____dollars ($_____).

(5.) _____will furnish and install the generators for the

sum of_____dollars ($_____).

(6.) _____will furnish and install one of the generators for

the sum of_____dollars ($_____).

(7.) _____will furnish and install one 50 Kilowatt generator under the same general specifications as those for the

100 Kilowatt generators for the sum of_____

_____dollars ($_____).

(8.) _____will furnish and install the switchboard and the wiring from the generators to the switchboard for the sum of

_____dollars ($_____).

(9.) _____will furnish and install all apparatus, materials,

and labor required for the complete system of feeders and mains as called for in Part No. 2 of the specifications for the

sum of _____ dollars ($_____).

(10.) _____ will furnish and install all apparatus, material and labor necessary for the feeders to centres of distribution Nos. 1, 3, 7, 8, 9, and 10; the distributing mains from centre No. 1 to Open Ward, from centre No. 3 to Surgical Building, from centre No. 8 to the Laundry Building and Nurses' Home, from centre No. 9 to Pathological Building, and from centre No. 10 to the new boiler-house; the feeders for the motors, the tie mains between centres Nos. 1 and 3, 1 and 2, 2 and 9, 2 and 10, 9 and 7, and 7 and 8, and all the cut-out cabinets and cut-outs at the terminals of the above feeders and mains. The above to be installed complete in every respect as called for in Part No. 2 of the specifications for the sum of

_____ dollars (_____).

(11.) _____ will furnish and install all apparatus, materials, and labor required for the complete system of feeders and mains as called for in Part No. 2 of the specifications, with the exception of the part included in the tenth subdivision of the

proposal, for the sum of _____

_____ dollars ($_____).

(12.) _____ will furnish and install all materials and labor required for the Surgical Building under Part No. 3 of the

specifications for the sum of _____

_____ dollars ($_____).

(13.) _____ will furnish and install all materials and labor required for the Open Ward Building under Part No. 3 of the specifications for the sum of_____ _____dollars ($_____).

(14.) _____will furnish and install all materials and labor required by Part No. 4 of the specifications for wiring the old buildings for the sum of_____ _____dollars ($_____).

(15.) _____will furnish and install all apparatus, materials, and labor required by Part No. 5 of the specifications for a complete telephone system for the sum of_____ _____dollars ($_____).

(Signed)

_____

Contractor.

In presence of_____.

Boston, , 1895.

IMPORTANT NOTICE.

(1.) The proposed price for each item must be stated both in writing and in figures.

(2.) The proposal must be signed by the person or persons who will do the work.

(3.) The proposal will be taken to have been made with reference to the copy of the contract and the contract drawings in the office of the City Architect, and contractors must compare their copies therewith, and note the changes, if any, made.

(4.) The names of sureties and of sub-contractors should be given when estimate is submitted, as they must be given before the award of the contract will be made.

(5.) The proposal must be sealed in an envelope, addressed, "Hon. Edwin U. Curtis, Mayor, City Hall, Boston, Mass.," indorsed, "Proposals for an Electric-light Plant, a Telephone System, a System of Electric Bells and Speaking-tubes for the Boston City Hospital," and left at the office of the City Architect, City Hall, Boston, Mass., before 12 o'clock noon of January 21, 1895.

CONTRACT.

The City of Boston, a municipal corporation in the State of Massachusetts, and _____

_____

_____

Contractor, agree as follows:

(1.) Said Contractor shall furnish, build, and install an electric-light plant, a telephone system, a system of electric bells and speaking-tubes at the Boston City Hospital, Ward 18, in the city of Boston, shown on plans marked "City of Boston Electric Light Plant, Boston City Hospital," numbered from 1 to 45, inclusive, and from 49 to 69, inclusive, on file in the office of the City Architect of said city, and shall furnish all labor, all materials, implements, and utensils, do all work, and furnish and do everything necessary to the completion of the work, conforming to said plans and this contract so far as they go; and said Architect may make such changes in the form, dimensions, and materials of the work, and in the plans and specifications thereof, as said Architect may, from time to time, during the progress thereof, deem proper to make, and said Contractor shall comply with such changes.

(2.) The Contractor must conform to the specifications hereinafter written, carry on the work so as not to interfere with access to any hydrant and not to inconvenience public travel or the neighboring residents; carefully protect all work so that no injury will come to it from frost, accident, or any cause; repair any injury which does come to the work; do no work of any kind when said Architect shall in writing notify

said Contractor that in his opinion good work cannot be obtained; set aside all defective or imperfect materials as soon as delivered, and give notice thereof at once to said Architect: remove at once from the vicinity of the work all defective materials and all materials excavated, the same to be the property of the Contractor, except such as can be made use of on the work, or such as said Architect shall in writing notify said Contractor that the City will retain and remove.

The following are the specifications subjected to changes as aforesaid.

SAMPLES FOR INSPECTION.

Contractors shall, at the request of the Architect, submit for inspection, samples of any wires, cut-outs, and other materials which they wish to use.

TESTS.

After the completion of the work the Architect will make all tests of the materials and apparatus which he considers necessary.

If the results of these tests show that the work does not comply with the requirements of the specifications the Contractors shall immediately make all changes necessary to put the work into proper condition, and shall pay the expenses of all subsequent tests which may be necessary to determine whether the work is satisfactory or not.

PATENTS.

The Contractor agrees to pay and indemnify the City against all damages and costs, including counsel fees, of any claims or suits which may be brought for alleged infringements of patents by use of any article or work delivered under this contract.

SYSTEM.

The dynamos, switchboard, and system of mains and feeders shall be installed on the two wire system for a pressure of 110 volts at the lamps.

The buildings shall be wired on the three wire convertible system for 110 or 220 volts pressure.

WATTS PER CANDLE-POWER.

All wiring shall be calculated on the basis of 60 watts for each lamp of 16 candle-power.

MOULDING.

All moulding shall be of the kind of wood used in the trimming of the part of the building in which it is placed.

If not previously impregnated with paraffin or other moisture repellent, the moulding is to be shellaced or painted inside and out with water-proof paint, an additional coat being put on after the capping is in place.

Great care should be taken in installing moulding that the completed work shall be as neat and inconspicuous as possible.

All moulding must be finished to correspond in appearance as nearly as possible with the surface to which it is fastened.

All moulding and capping shall be of the shape shown in drawing.

FUSES.

Each cut-out shall be provided with copper-tipped fuses.

Fuses shall have a safe carrying capacity not exceeding the full load for the circuit they protect.

An extra set of fuses shall be provided.

All fuses shall blow within forty per cent. (40%) of their safe carrying capacity.

SWITCHES.

All switches shall be mounted on slate or porcelain bases, provided with close fitting covers, and of neat design, approved by the Architect, and shall indicate clearly whether the circuit controlled is on or off.

Any switch not located in the room whose lights it controls, or where the circuit controlled is not clearly apparent, shall be distinctly labelled to indicate the circuit controlled by it.

All switches shall be double pole.

Switches shall be placed four feet six inches from the floor.

SOCKETS.

The Contractor shall furnish and install all the sockets making all wiring connections. He shall have all sockets finished to match the fixture on which they are placed. Sockets shall be of the best design, and samples shall be submitted to said Architect for his approval before any are installed.

LAMPS.

All lamps shall be sixteen candle-power, unless otherwise specified in location sheets or plans.

Lamps shall be guaranteed to have an average life of at least 600 hours, and to require not more than 3.7 watts per mean candle-power when at normal voltage.

All lamps failing within the first twelve hours of use shall be renewed by said Contractor without charge.

GENERAL.

Said Contractor shall furnish and install all materials, apparatus, and labor necessary for an electric-light plant complete in every respect from the engines to the lamps. He shall furnish and install four electric motors with all necessary wiring and accessories for the same. He shall furnish and install a complete system of electric bells and speaking-tubes as hereinafter described. He shall furnish and install all material and apparatus for a complete telephone system, and he shall provide and set electrical surgical instruments to the value of four hundred dollars, as directed by said Architect.

Said Contractor shall do all cutting and drilling of walls, floors, etc., and shall furnish all tools, implements, and labor requisite.

Said Contractor shall provide wire-lathing over all pipe slots in plastered walls.

The work is to be done with as little inconvenience to those at work in the building as possible, and all refuse and unused material is to belong to the Contractor and must be removed by him as the work progresses. All parts of the building must be left in as good condition as before the work was begun.

Said Contractor for the electrical work is to be responsible for all materials and apparatus pertaining to his work in the building until accepted by the City.

Wherever anything requisite to the completion of a first-class installation is not particularly specified herein, it is nevertheless to be furnished of the best quality of materials and workmanship, and is to correspond with the remainder of the work herein specified.

All of the materials furnished, and all labor done, are to be fully up to the standard of these specifications and the drawings hereto annexed, and are to be of the best of their respective classes.

All parts of the stock furnished for the wood construction are to be thoroughly first class, clear, straight grained, thoroughly kiln-dried, and acceptable in every respect to the said Architect. No knots are to be allowed in any part of the work; all to correspond with finish of buildings.

The approximate location of lights, switches, and cut-outs are given on the plans. The apparatus is not, however, located to scale, and wherever the exact location is not determined by the present fixtures or by the construction of the building, the contractor must obtain the exact location from the Architect.

The following symbols have been employed:

indicates lamp outlet keyless socket ceiling.

" " " key " "

" " " keyless " side bracket.

" " " key " " "

indicates lamp outlet keyless socket side receptacle.

" " " key " " "

" a switch.

" a cut-out.

" a cut-out cabinet.

Switches are connected to the fixtures which they control by dotted lines.

The location of cut-out boxes and of underground ducts and conduits for the system of mains and feeders are given on the plans numbered 68 and 69. Cut-out boxes at centres of distribution are indicated by small circles. Each centre of distribution is numbered, the number being placed in the small circle. The main cut-out boxes in the building are indicated by crosses. The centres of distribution are connected with the main cut-out boxes which they feed by dotted lines.

The following specifications are sub-divided into five parts, as follows:

1st. All of the apparatus to be installed in the engine-room, including the foundations for the engines and generation, the engine-room floor, the engines, the generators, the switchboard, and the wiring from the generators to the switchboard, all to be complete and ready for operation.

2d. The complete system of feeders and mains to connect the switchboard in the engine-room with the main cut-out cabinets in the various buildings.

3d. The wiring of the three new buildings, the electric motors and the system of electric bells and speaking-tubes for the same.

4th. The wiring of all of the old buildings.

5th. The complete telephone system.

PART No. 1.

THE APPARATUS IN THE ENGINE-ROOM.

ENGINES.

These specifications call for three 180 horse-power simple engines, as hereinafter described; delivered and set up ready for operation in the engine-room of the Boston City Hospital on foundations to be provided by the Contractor, and all accessorise necessary for the continual and successful operation of the engines whether herein specified or not.

CONDITIONS FOR SERVICE.

The engines are to be used to furnish power for electric lighting, and are to be directly connected to the generators.

CAPACITY.

Each engine shall be capable of running safely with a steam pressure of 115 pounds. Each engine shall develop 180 horse-power at the most economical point of cut-off with 100 pounds initial steam-pressure, and 10 pounds back-pressure.

REGULATION.

The regulation shall be effected by an automatic cut-off governor. The momentary variation in speed, *i.e.* a variation that would take place in from three to five seconds, must not exceed 2 per cent. when 75 per cent. of the load is thrown suddenly on and off The governor is to regulate the speed exactly for a variation of 10 lbs. either way from the normal steam-pressure.

ECONOMY.

The engines shall be as economical in steam consumption as the best makes of engines of similar type when running under the same conditions.

CYLINDERS AND PISTONS.

The steam cylinders shall be made from close-grained, hard charcoal iron, of proper thickness and general dimensions to safely carry the specified steam pressure when rebored twice, and are to be counter-bored so that the pistons shall run over one quarter of an inch.

The pistons and cylinder-heads shall be faced, and definite clearance given between them when the pistons are at the end of their stroke.

The piston-rod glands are to be packed with Tripp metallic packing, and valve-stems with soft packing.

JACKETING.

The cylinder lagging shall be of smooth steel plate except that of the cylinder-heads, which shall be of plain polished smooth iron castings. No part of the cylinder-heads or steam chest shall be left bare, and they and all pipes furnished by the Contractor shall be covered by him with magnesia covering $1\frac{1}{4}$ in. thick.

MAIN SHAFT.

The main shaft shall be of charcoal wrought-iron scrap, free from flaws and other imperfections, well turned and finished. If provided with a cast-iron disc wheel for attachment of crank, the latter shall be suitably counter balanced.

The main shaft shall be made in a suitable manner and of suitable dimensions to satisfy all the requirements of the generators.

BOXES.

The wearing surfaces of the boxes are to be entirely and continuously covered with the best quality of babbitt metal, well scored with wide and deep oil grooves. This babbit shall be well hammered before boring.

FLY-WHEELS.

Fly-wheels shall have arms of oval cross-section.

BED-PLATE.

The bed-plate shall be cast in a suitable manner and of suitable dimensions to satisfy all the requirements of the generators.

CONNECTING ROD, ETC.

The cross-head and crank-pins shall be of Otis crank-pin steel. The connecting-rod boxes shall be babbitted in the same manner as the main bearings.

BOLTS AND NUTS.

All nuts, bolts, and screw-threads shall be of the United States standard, and no bolts are to be of less diameter than $\frac{5}{8}$ in. wherever they are screwed hard.

LUBRICATION.

All oiling devices for the proper lubrication of the engines, including one sight feed lubricator (of approved make) for each cylinder, and one oil pump for each cylinder, shall be furnished and erected by the Contractor.

INDICATOR-PIPES AND REDUCING-MOTION.

Brass indicator-pipes and a three-way indicator-cock shall be furnished by the Contractor. At each end of each indicator-pipe, and as near the cylinder as possible, shall be placed a finished cock or valve so as to isolate the pipes when the indicators are not in use. There shall be furnished with each engine a substantial and exact indicator reducing mechanism.

DETAIL DIMENSIONS.

The Contractor shall state in his proposal the dimensions of the following parts of the engine which he proposes to furnish:

Diameter of cylinder.
Length of stroke.
Number of revolutions per minute.
Diameter of fly-wheel.
Face of fly-wheel.
Diameter of cross-head pin.
Length " " "
Diameter of crank-pin.
Length " "
Diameter of main shaft journal.
Length " " " "
Diameters of shaft.
Weight of fly-wheel.
Weight of whole engine, including fly-wheel.

INTERCHANGEABILITY.

All parts of the engines shall be interchangeable with those of similar engines of the same make.

GENERATORS.

These specifications call for three 100 kilowatt generators as hereinafter described, delivered, and set up ready for operation in the engine-room of the Boston City Hospital and all accessories necessary for the continual and successful operation of the generators whether herein specified or not.

The generators are to be used to furnish current for lighting and power, and are to be directly connected to the engines.

Generators shall be compound wound and over compounded for a drop of 10 per cent. under full load.

Shall give a constant potential of 110 volts at lamps under all variations of load at constant speed, as far as this is possible with the method of wiring.

Shall be capable of operating continuously for twenty-four hours at full rated capacity above specified, without injury and

without rising to a temperature of more than 40 degrees centigrade above that of the surrounding atmosphere in either armature or field coils.

Shall run so quietly that no vibration will be felt or noise heard outside the engine-room from their running when the doors and windows are closed.

Shall have practically constant lead for extreme variation of load.

Shall have self-oiling bearings of most approved type which shall be free from excessive heating when running continuously.

Shall be so constructed that all parts are perfectly interchangeable with those of similar machines of the same make.

Shall have an insulation resistance of at least two megohms between the frame and the armature windings, brushes, and field coils.

Shall be free from defective labor and materials, and any defect developed thereby shall be made good without expense to said City.

Shall have brushes of make and design satisfactory to said Architect. An extra set of brushes shall be furnished.

Brushes shall be reasonably free from sparking, heating, and cutting, the amount permissible to be determined by said Architect.

Shall have a commercial efficiency under full load and half-load of 90 per cent. and 80 per cent. respectively.

Shall be provided with a hand regulator of proper size to allow the voltage to be varied at least twenty-five per cent. (25 %) on each side of the normal.

FOUNDATIONS.

The Contractor shall do all excavating and furnish and place the brickwork for the engine and dynamo foundations.

Foundations shall be laid with hard-burned brick of good quality; no soft brick, bats, or benches, shall be used in any portion of the work; mortar of one part cement and two parts

sand, shall be used; all joints to be close, each and every brick is to be bedded in mortar under its bottom, sides, and ends.

Clearance shall be left around all bolts built into place, and care shall be taken to insure true and full bearing for all plates and ironwork built into the foundation.

All cement used shall be of best Portland.

All brickwork shall be bonded with one full header course in every eight courses.

All bricks shall be wet before laying.

A bed of concrete two feet thick shall be placed under the foundations, one foot of which shall be around the head of piles and the other foot above tops of piles.

SWITCHBOARD.

Said Contractor shall furnish and install, in the dynamo-room at the City Hospital, a switchboard and all instruments, switches, rheostats, fuse-blocks, etc., mentioned below.

The switchboard shall be made of white Italian marble $1\frac{1}{2}$ inches thick. The face of the marble shall be finely polished. The marble shall be supported by brass and iron supports. Brass shall be used wherever the supports show from the face of the board, and shall be finely polished and lacquered. The board shall be of sufficient size to contain all instruments, switches, rheostats, fuse-blocks, etc., without crowding.

The instruments, switches, etc., shall be arranged in a neat and systematic manner. The arrangement shall be subject to the approval of the Architect. Before commencing work on the Boards, said Contractor shall hand to the Architect a drawing showing the exact arrangement of the apparatus on the board which he proposes to use, and shall obtain a written approval of the same from said Architect.

All instruments and switches shall be mounted directly on the face of the board. Rheostats shall be placed on the back of the board with the contact points and arm mounted directly on the front.

All fuse blocks shall be mounted directly on one or more strips of slate which shall be placed on the back of the board with an air space of at least one inch between the slate and the marble.

The following apparatus shall be furnished and installed on the board:

Three Weston isolated plant ammeters, one to be placed in the circuit of each dynamo of sufficient capacity to measure current for a twenty-five per cent. (25%) overload of the dynamo.

One illuminated dial Weston station voltmeter, 150 volt scale, so arranged that the voltage may be measured at the bus bars or at any of the ten sets of pressure mains from the centres of distribution.

One Weston portable voltmeter 150 volt scale which shall be placed on a marble shelf on the front of the board. This voltmeter shall be so connected that any of the following quantities may be measured; the voltage at the terminals of each dynamo, the voltage at the bus bars, and the insulation from ground of the bus bars.

One double pole single-throw switch in the circuit between each dynamo and the bus bars and one single pole double-throw switch in the circuit between each dynamo and the equalizing bar.

One double pole switch in each of the two motor circuits.

One double pole switch in each of the lighting circuits.

The carrying capacity of these switches shall be as follows:

Circuit to centre				No.	1	. .	184	ampères.
"	"	"	"		2	. .	235	"
"	"	"	"		3	. .	376	"
"	"	"	"		4	. .	281	"
"	"	"	"		5	. .	113	"
"	"	"	"		6	. .	248	"
"	"	"	"		7	. .	265	"

Circuit to centre No.				8	.	.	133 ampères.
"	"	"	"	9	.	.	70 "
"	"	"	"	10	.	.	45 "

Motor circuits to Pathological Building, 190 ampères.

Motor circuit to Surgical Building, Open Ward, and Isolating Ward, 600 ampères.

A set of fuse blocks in each dynamo circuit, each feeder circuit, and each motor circuit.

Three field rheostats, which will be furnished with the dynamos, shall be installed on the switchboard.

All metal parts of instruments, switches, rheostats, fuse blocks, etc., which show from the face of the board shall be highly polished and lacquered.

The carrying capacity of all instruments, switches, fuse blocks, bus bars, wires, connections, etc., shall be such that they will not heat more than fifteen (15) degrees centigrade above the surrounding air when under full load.

Said Contractor shall make all connections on the back of the board between the instruments, switches, fuse blocks, rheostats, bus bars, etc., and shall make connections between the fuse blocks and the electric-light feeders, the motor mains, and the mains from the dynamos.

DYNAMO MAINS.

The Contractor shall furnish and install suitable mains to connect the dynamos with the switchboard, and shall make connections between the mains and the dynamos.

These mains shall run down from the dynamos under the floor, then along under the floor to the switchboard and up back of the board.

These mains shall be rubber covered, braided, with an outside covering of lead. They shall be placed one foot below the surface of the floor and shall be completely embedded in pitch,

the wires being surrounded at all points by at least one inch of pitch.

THREE-WIRE SYSTEM.

The above specifications are for a plant to be operated on the two-wire system, but any bidder representing the General Electric Company may hand in with his proposal for the two-wire plant another proposal for a plant to be operated on the three-wire system for 110 and 220 volts pressure under the same general specifications.

In this case the following changes shall be made in the specifications:

GENERATORS.

Six 50 Kilowatt generators shall be furnished in place of three 100 Kilowat generators.

The amount of over-compounding of the generators shall be decided after the contract is awarded.

SWITCHBOARD.

Six ammeters shall be furnished and installed in the dynamo circuits in place of three.

Two main ammeters shall be furnished and installed so as to measure the total output of the plant.

Two station voltmeters shall be furnished and installed instead of one. These voltmeters shall be connected so as to measure the voltage on each side of the system, at the bus bars and at each of the pressure mains from the centres of distribution.

Switches in dynamo circuits shall be double throw instead of single throw so that any dynamo may be connected to either side of the system.

Switches in feeder circuits shall be triple pole single throw and one-half of the carrying capacity called for on the two wire system.

Switches in motor circuits shall be double pole single throw with one-half of the carrying capacity called for on the two wire system. Six field rheostats shall be installed instead of three.

ENGINE-ROOM FLOOR.

Said Contractor shall furnish and set all materials necesary to construct and install floor of engine and dynamo room to the value of two thousand five hundred dollars ($2,500) as directed by said Architect.

PART No. 2.

SYSTEM OF MAINS AND FEEDERS.

GENERAL.

Said Contractor is to furnish and install all wires, tubes, insulators, supports, cut-outs, cut-out cabinets, and all other materials necessary for a complete wiring installation from the main switchboard in the engine-room to the main cut-out cabinets in the various buildings. He is not to make connections between the feeders and the instruments on the switchboard, but shall leave a sufficient length of wire for this purpose. He shall furnish and install the cut-out cabinets and cut-outs at the centres of distribution, and shall make connections between the wires and the cut-outs in the main cut-out cabinets in the buildings.

FEEDERS.

Ten sets of feeders shall be run from the switchboard to the cut-out cabinet at the ten centres of distribution indicated on Plan No. 1354.

These feeders shall be figured for a loss of potential between

the switchboard and the centres of distribution of fifteen (15) volts under the following loads:

Feeders to centre No.	1,	184	ampères.
" "	2,	235	"
" "	3,	376	"
" "	4,	281	"
" "	5,	113	"
" "	6,	248	"
" "	7,	265	"
" "	8,	133	"
" "	9,	70	"
" "	10,	45	"

The feeders shall be run through the underground ducts in which the steam-pipes are run, and through underground conduits which shall be installed by the Contractor.

The locations of these underground ducts and conduits are shown on plans.

From the underground ducts the feeders shall be run up the walls to the cut-out cabinets at the centres of distribution. These cut-out cabinets shall be located on the walls of the basements near the ceiling.

DISTRIBUTING MAINS.

A set of mains shall be run to each building from one of the centres of distribution, as shown on plans.

These mains shall be run as follows:

From centre No. 1 to

The Isolating Ward.
The Open Ward.
The laundry, boiler-house, and morgue.

From centre No. 2 to

Wards K and L.
Ward A.
Ward E.

From centre No. 3 to

Surgical building.
Ward P.
Library building, and kitchen.

From centre No. 4 to

Administration building.
Medical building.
Ward T.

From centre No. 5 to

Wards B, C, D.
Surgical out-patients' building.

From centre No. 6 to

Wards F, G, H.
Medical out-patients' building.
Nurses' home.

From centre No. 7 mains have already been run to the following buildings:

Gate lodge.
Administration building.
Domestic building.
Ward No. 1.
Ward No. 2.

At this centre, No. 7, the Contractor shall run the feeders into the cut-out box, which has already been installed, and shall make connections between the cut-out and the feeders, but he will not be expected to make any connections between the cut-outs at the centre of distribution and the wiring in the buildings.

From centre No. 8 to

The Nurses' Home.
The laundry and mortuary.

From centre No. 9 to

The Pathological Building.

From centre No. 10 to

The stable.

The new boiler and engine-house.

These mains to the buildings from the centres of distribution shall be run along the walls and ceilings of the basements and connecting corridors and through the underground conduits connecting the buildings.

The mains shall be figured for a loss of potential between the centres of distribution and the main cut-out boxes in the buildings of one and one-half ($1\frac{1}{2}$) volts under the following loads:

Isolating ward	77	ampères.
Open ward	51	"
Laundry and boiler-house	56	"
Wards K and L	86	"
Ward A	74	"
Ward E	75	"
Ward P	33	"
Medical library and kitchen	52	"
Surgical building	291	"
Ward T	33	"
Medical building	118	"
Administration building	130	"
Wards B, C, D	83	"
Surgical Out-patients' building	30	"
Wards F, G, H	83	"
Medical Out-patients' building	81	"
Old Nurses' Home	83	"
New laundry and mortuary	75	"
New Nurses' Home	58	"
Pathological building	70	"
Ambulance stable	20	"
New boiler and engine-house	25	"

EQUALIZING MAINS.

Equalizing or tie mains shall be run between the centres of distribution. These equalizing mains shall be run of the sizes given in the following table:

Between centres	Nos.	1	and	No.	2,	211,600	cir.	mils.		
"	"	"	1	"	"	3,	211,600	"	"	
"	"	"	3	"	"	5,	211,600	"	"	
"	"	"	3	"	"	4,	211,600	"	"	
"	"	"	4	"	"	6,	211,600	"	"	
"	"	"	4	"	"	2,	211,600	"	"	
"	"	"	2	"	"	10,	211,600	"	"	
"	"	"	2	"	"	9,	423,200	"	"	
"	"	"	9	"	"	7,	423,200	"	"	
"	"	"	7	"	"	8,	423,200	"	"	

The equalizing mains shall be run in the same manner as the feeders in the underground ducts and conduits.

PRESSURE MAINS.

A set of pressure mains shall be run from the switchboard through the underground ducts and conduits to each of the centres of distribution, and shall be connected into the cut-outs at the centres.

MOTOR MAINS.

Two sets of mains for supplying current to electric motors shall be run from the main switchboard in the dynamo-room. One circuit shall be run to the main cut-out box in the Pathological building, and the other circuit to the main cut-out boxes in the Surgical building, the Open Ward, and the Isolating Ward.

These mains shall be figured for a loss of potential between the switchboard and the main cut-out boxes of twenty (20) volts under full load.

The sizes of the motors will be as follows :

1 in Pathological building. . .	25 horse-power.	
1 in Open Ward	25	"
2 in Surgical building . . .	50	" each.

These mains are to be run through the underground ducts and conduits in a similar manner to the lighting feeders.

METHOD OF RUNNING WIRES.

Wherever possible the feeders, equalizing mains, pressure mains, and motor mains, shall be run on porcelain insulators in the underground ducts in which the steam-pipes are now run.

This will be impossible when running under Wards F, G, H, and Wards B, C, D, and when running from the duct under the greenhouse to centre No. 1.

The wires from the ducts under the greenhouse to centre No. 1 shall be run in an underground conduit, which shall be furnished and installed by the Contractor.

The wires under Wards F, G, H, and B, C, D, shall be run on the walls or ceilings of the basements on porcelain insulators.

At all centres of distribution the mains and feeders shall be brought up through the basement floors and run vertically up the side walls on porcelain insulators to the cut-out box at the centre of distribution.

Wherever the wires are run on porcelain insulators above the floor of the basements they are to be neatly boxed in. The wood used for this purpose shall be of the same kind as that used in the trimmings of the part of the building in which it is placed, and shall be finished in a similar manner.

The wood shall be of the best quality, thoroughly seasoned.

This boxing shall be as neat and inconspicuous as possible, and the edges and corners shall be rounded. All joints shall

be close and well made. The cover shall be put on with screws.

The distributing mains from the centres of distribution to the main cut-out boxes in the buildings shall be run on the walls and ceilings of the basements and connecting corridors in wooden mouldings.

The distributing mains between Wards B, C, D, and the Surgical Out-patients' building, between Wards F, G, H, and the Medical Out-patients' building, between the Medical Out-patients, and the Nurses' home, and between the Open Ward and the laundry and boiler-house, shall be run in underground conduit, which shall be furnished and installed by the Contractor.

CARRYING CAPACITY.

It will be noted that it is impossible to obtain the drop in the feeders, called for by the specifications, without exceeding, when all lamps are turned on, the carrying capacities of the wire, as given by the rules of the Boston Fire Underwriters Union.

In all cases except that of the feeder to centre No. 10, this excess of current over the carrying capacity is not sufficient to require any special provision, particularly as the lamps will never all be turned on at the same time.

The wires running to centre No. 10 shall be No. 4, and an iron wire resistance shall be placed in the circuit so that the loss of potential shall be fifteen volts when all lamps are turned on.

This resistance shall be placed in a suitable metal box or frame and shall be installed in the dynamo-room. The exterior of this resistance shall be carefully and neatly finished and painted.

LOSS OF POTENTIAL.

The loss of potential allowed in the wires is stated in the clauses headed "Feeders," Distributing Mains," and "Motor Mains."

In determining the size of the wire, the Contractor shall figure that the air in the steam-pipe ducts will be at a temperature of 125 degrees Fahrenheit.

WIRING ON CLEATS AND INSULATORS.

All insulators and cleats shall be of porcelain and shall be firmly held in place by screws.

Insulators shall be so installed that the wires shall have at all points between insulators at least one and one-half inches of clear air space beneath them. In no case shall insulators be placed more than six feet apart, and where wires have less than two inches of clear space beneath them the insulators shall not be placed more than three feet apart.

CONDUIT.

The Contractor shall furnish and install underground conduits at the following places:

From the underground duct under the greenhouse to the underground duct under the corridor at the end of the Open Ward.

From the basement of Wards B, C, D to the basement of the Surgical Out-patients' building.

From the basement of Wards F, G, H, to the basement of the Medical Out-patients' building.

From the basement of the Medical Out-patients' building to the basement of the Nurses' Home.

The materials and design for these underground conduits shall be submitted to said Architect for approval before the work is commenced.

The conduits shall consist of a number of tubes or ducts so constructed and installed that any of the wires may be easily

withdrawn. In no case shall two wires be placed in the same tube with the exception of the pressure-mains. The two wires of this circuit may be placed in the same tube.

The Contractor shall install two extra tubes in each conduit in addition to those which he will require for the wires which he is to install under these specifications. These extra tubes shall each be of one and one-half inches internal diameter.

WIRE.

All wire which is to be run in moulding shall be rubber covered, protected by an outside braiding.

All wire which is placed in the underground conduits shall be rubber covered with an outside braiding, and a covering of lead over the braid.

All wire which is to be run on porcelain insulators shall be triple-braided weather-proof wire.

CUT-OUTS.

All fuse-blocks and cut-outs are to be double pole, or single pole if one is provided for each main, and the terminals shall be mounted on slate or porcelain bases.

The poles shall be separated sufficiently to prevent any possibility of arcing when the fuse blows.

The carrying capacity of all cut-outs shall be so calculated that they will carry continuously the maximum load without increasing in temperature more than 15 degrees centigrade above the surrounding air.

All cut-outs shall be placed in cabinets.

The cabinets shall be made of the kind of wood used in the trimming of the part of the building in which they are placed, and shall be finished in a similar manner.

The cabinets shall be lined throughout with asbestos one-fourth ($\frac{1}{4}$) of an inch thick, and shall be provided with Yale locks and keys, all keys to be identical, or locks to be master-keyed, as directed.

The cabinets shall be made as small as possible, and the exterior as neat and inconspicuous as possible.

INSULATION RESISTANCE.

The total insulation resistance from the ground of the entire system of mains and feeders included in these specifications shall be greater than one megohm.

The insulation resistance between the mains shall be of an equal amount.

THREE-WIRE SYSTEM.

The above specifications are for a plant to be operated on the two-wire system, but any bidder representing the General Electric Company may hand in with his proposal for the two-wire system another proposal based on running the wires on the three-wire system, for 110 and 220 volts pressure, under the same general specifications.

In this case the following requirements shall be agreed to:

The feeders and mains shall be run at the locations and in the manner specified for the two-wire system.

The loss of potential in the distributing mains from the centres of distribution to the main cut-out boxes, shall not be greater than one and one-half ($1\frac{1}{2}$) volts on each side of the three-wire system under full load, and the loss under full load shall be the same in the mains to each building.

The distributing main when feeding all the lights in the building to which they run shall not carry a greater current than that allowed by the rules of the Boston Fire Underwriters Union.

The loss of potential in the feeders from the switchboard to the centres of distribution shall not be greater than fifteen (15) volts on each side of the three-wire system under full load, and the loss under full load shall be the same to each centre of distribution.

In no case shall the feeders carry a greater amount of current per unit cross-section than has been allowed for the feeders for the two-wire system.

The sizes of equalizing mains shall be as follows:

The neutral wire shall have one quarter ($\frac{1}{4}$) the cross-section called for under the two-wire system, and the outside wires shall each have one-half ($\frac{1}{2}$) the cross-section called for under the two-wire system.

Motor mains shall be run two wire for 220 volts pressure. The loss of potential in these mains between the switchboard and the main cut-out boxes in the buildings shall not be greater than twenty (20) volts under full load.

Part No. 3.

WIRING TWO NEW BUILDINGS.

THE SURGICAL BUILDING.

THE OPEN WARD BUILDING.

GENERAL.

Said Contractor shall furnish and install all wires, tubes, insulators, supports, cut-outs, switches, fixtures, shades, shade-holders, lamps, and all other material necessary for a complete wiring installation.

He shall furnish and install four motors ready to start and make all wiring connections between the motors and the main cut-out cabinets in the basements of the buildings in which the motors are placed. The cut-outs for the motor circuits shall be separate from the lighting cut-outs, to allow a special set of mains for each motor to be run directly from the dynamo-room in boiler-house.

Said Contractor shall provide and set fixtures, shades, shade-holders, torches, etc., to the value of seventeen hundred dollars ($1,700), delivered unwired and provided with approved insulating joints, as directed by said Architect.

Said Contractor shall furnish and install a watchman's clock and twenty-five stations with all necessary wiring in complete working order to the value of six hundred and fifty dollars ($650.00).

Said Contractor shall furnish and install all materials necessary for a complete system of electric bells and speaking-tubes, and the tubing for the wires of a telephone system.

MAINS, RISERS, AND TAP-CIRCUITS.

The Contractor shall start the wiring in each building from the point marked "Main Cut-out Cabinet" on the basement plan. He shall install the main cut-out cabinet and the cut-outs and all materials necessary for a complete wiring installation from this point to the lamps.

From the main cut-out cabinets the circuits shall be run through the basements to the points marked "Risers" on the basement plans. From these points risers shall be run up through the buildings. Cut out cabinets for tap-circuits shall be placed on the risers near the ceiling of each floor.

SURGICAL WARD.

Three sets of risers shall be run from basement at points marked "Risers," to third floor. In the basement and first floor an extra cut-out cabinet shall be placed at point indicated by symbols from which lights in that section shall be fed.

OPEN WARD.

One set of risers shall be run from basement to second floor, at point marked on plans.

Four tap-circuits shall be run for lights in Open Wards, on each floor, each circuit feeding alternate lights.

METHOD OF WIRING.

All wires on walls or ceilings which are to be plastered shall be run in brass armored conduit.

All wires on walls or ceilings which are not to be plastered shall be run in iron armored conduit.

CONDUIT WIRING.

All conduits shall be metal covered.

Contractor shall protect all tubes from acids, alkalies, and other corrosive substances, by a special incorrodible covering wherever necessary.

The continuity of each tube shall be strictly preserved, and all joints, elbows, etc., shall be carefully made, in order that wires may be withdrawn and replaced if desired.

In tap circuits, where not more than 5 ampères are carried by the wires, two conductors may be placed in each tube, provided wire satisfactory to said Architect is used; but in all other cases but one wire will be allowed in the conduit.

All tubes shall be of sufficient size to allow the wire to be readily withdrawn and reinserted, and tests will be made on the completed work to insure the fulfilment of this clause. No tubes smaller than three-eighth inches internal diameter shall be allowed without written permission of said Architect. No tubes shall project from the general surface of the brick or terra-cotta walls more than one-half of an inch, and walls shall be cut if necessary to insure this. In no case shall the tubes come nearer than one-fourth inch to the finished surface of the plastering.

Should there be any likelihood of loss of stability to the plaster, caused by this cutting of the walls, the Contractor shall cover over such spaces by wire lathing at his own expense.

Tubes shall be held in place by metal clips. No staples or nails will be allowed under any conditions.

Tubes shall be squarely cut, reamed out, and the ends joined by a coupling, designed for that purpose, and by means of special tools made for this work. All joints shall be well filled with white-lead.

In all cases where possible, elbows shall be avoided by running the conduit in easy bends of long radius.

Tubes shall be run in such a way that there is no depression

between junction box and outlet, in which moisture may collect, and special care shall be taken to insure this.

After the conduits are run powdered soapstone shall be blown into the tubes, to facilitate drawing in the wire. Care shall be taken in all construction work that the conduits, especially under the floor, do not become injured. No wires or strings shall be inserted until plastering has been completed.

LOSS OF POTENTIAL.

The total loss of potential between the main cut-outs in the basement and any light shall not be greater than one and one-half volts or less than one volt under full load on the two-wire system.

CARRYING CAPACITY.

The carrying capacity of all wires, switches, and cut-outs shall be so calculated that they will carry continuously the maximum load without in any case increasing in temperature more than 15 degrees centigrade above the surrounding air.

INSULATION RESISTANCE.

The total insulation resistance from the ground of the installation in each building shall be greater than 500,000 ohms, and the resistance between mains with switches closed and the lamps out shall be of an equal amount.

WIRE.

The Contractor shall specify the make or makes of wire which he proposes to use throughout the installation. The wire shall be rubber covered, protected by an outside braiding.

In no case shall more than ten 16 candle-power lamps, or their equivalent, be fed from the same tap current.

Flexible cord or twin wire shall not be used under any conditions without the written consent of said Architect. All

wires not run in conduit shall be protected by bushings of porcelain, or other satisfactory material, when passing through floors, walls, or woodwork.

No joints shall be allowed in concealed work.

CUT-OUTS.

All fuse-boxes and cut-outs shall be double pole, or single pole if one is provided for each main. They shall be constructed of slate or porcelain, and the poles shall be separated by a distance sufficient to prevent the possibility of arcing when the fuse blows.

All cut-outs shall be placed in cabinets furnished with locks and keys. These cabinets shall be made of wood to match finish of rooms, lined throughout with asbestos $\frac{1}{4}$ of an inch thick. The exterior shall be oiled, shellaced, and finished, shall be of neat and inconspicuous design; the front of the cabinet shall be made flush with the finished surface of the wall wherever the walls are to be plastered, and shall be made of the kind of wood used in the finish of the room.

LOCATION SHEET.

Locaton.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Open Ward.									
Basement.									
Detached cellar	..	1	..	1	1	..	1	16	1
Corner-room	..	1	..	1	1	..	1	16	1
Hall	..	1	..	1	1	..	1	32	2
Service-room	..	1	..	1	1	..	1	16	1
Corridor	..	2	..	2	2	..	2	16	2
Porters' room	..	1	..	1	1	..	1	16	1
Robing-room	..	1	..	1	1	..	1	16	1
Stairs	..	1	..	1	1	..	1	16	1
Cellar	..	4	..	4	4	..	4	16	4
Corridor	1	..	..	1	1	..	1	32	2
Corridor	..	5	..	5	5	..	5	32	10
Totals	1	18	..	19	19	..	19	..	26
First Floor.									
Detached lavatory	3	..	..	3	3	..	3	16	3
Vestibule	1	..	..	1	1	..	1	16	1
Passage	1	..	..	1	1	..	1	16	1
Patients' clothes	2	..	..	2	2	..	2	16	2
Carried forward	7	..	..	7	7	..	7	..	7

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number. 16-C. P. lamps.
Brought forward	7	. .	. .	7	7	. .	7	. .	7
Stairway	1	. .	. .	1	1	. .	1	16	1
Linen-closet	1	. .	. .	1	1	. .	1	16	1
Ward office	2	. .	. .	2	2	. .	2	16	2
Duty-room	2	. .	. .	2	2	. .	2	16	2
Medicine-closet	. .	1	. .	1	1	. .	1	16	1
Open ward	. .	28	. .	28	28	. .	28	16	28
Vestibule	1	. .	. .	1	1	. .	1	16	1
Stairway	1	. .	. .	1	1	. .	1	16	1
Spare-room	. .	2	. .	2	2	. .	2	16	2
Spare-room	. .	2	. .	2	2	. .	2	16	2
Bath-room	1	. .	. .	1	1	. .	1	16	1
Lavatory	1	. .	. .	1	1	. .	1	16	1
Corridor	2	. .	. .	2	2	. .	2	. .	3
Totals	19	33	. .	52	52	. .	52	. .	53
Second Floor.									
Detached lavatory	3	. .	. .	3	3	. .	3	16	3
Vestibule	1	. .	. .	1	1	. .	1	16	1
Passage	1	. .	. .	1	1	. .	1	16	1
Patients' clothes	2	. .	. .	2	2	. .	2	16	2
Carried forward . . .	7	. .	. .	7	7	. .	7	. .	7

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward	7	. .	. .	7	7	. .	7	. .	7
Spare-room	. .	2	. .	2	2	. .	2	16	2
Ward office	1	. .	. .	1	1	. .	1	16	1
Medicine-closet	. .	1	. .	1	1	. .	1	16	1
Duty-room	2	. .	. .	2	2	. .	2	16	2
Open ward	. .	28	. .	28	28	. .	28	16	28
Linen-closet	1	. .	. .	1	1	. .	1	16	1
Stairway	1	. .	. .	1	1	. .	1	16	1
Spare-room	. .	2	. .	2	2	. .	2	16	2
Spare-room	. .	2	. .	2	2	. .	2	16	2
Lavatory	1	. .	. .	1	1	. .	1	16	1
Bath-room	1	. .	. .	1	1	. .	1	16	1
Corridor	2	. .	. .	2	2	. .	2	. .	3
Totals	16	35	. .	51	51	. .	51	. .	52

Summary.

Open Ward.									
Basement	1	18	. .	19	19	. .	19	. .	26
First floor	19	33	. .	52	52	. .	52	. .	53
Second floor	16	35	. .	51	51	. .	51	. .	52
Totals	36	86	. .	122	122	. .	122	. .	131

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Sides.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Surgical Ward.									
Basement.									
Bath-room	..	1	..	1	1	..	1	16	1
Room 1	1	..	1	2	2	..	2	16	2
Women's toilet	..	2	..	2	2	..	2	16	2
Men's toilet	..	2	..	2	2	..	2	16	2
Room 2	1	..	1	2	2	..	2	16	2
Supervisor's office	1	3	..	4	5	..	5	16	5
Lavatory	..	3	..	3	3	..	3	16	3
Accident-room	1	1	1	3	9	..	9	16	9
Accident-room	1	1	1	3	9	..	9	16	9
Accident-room	1	1	1	3	9	..	9	16	9
Women's accident ward	1	2	1	4	4	..	4	16	4
Serving-room	1	1	1	3	3	..	3	16	3
Accident ward	2	4	1	7	8	..	8	16	8
Vestibule	1	..	..	1	1	..	1	16	1
Museum	4	..	..	4	8	..	8	16	8
Lavatory	..	3	..	3	3	..	3	16	3
Dark-room	..	1	..	1	1	..	1	16	1
Stairs	..	1	..	1	1	..	1	16	1
Lavatories	..	7	..	7	7	..	7	16	7
Stewards' stores	2	1	2	5	7	..	7	16	7
Carried forward	17	34	10	61	87	..	87	..	87

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key Sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	17	34	10	61	87	. .	87	. .	87
Receiving and packing place,	3	2	. .	5	2	. .	8	16	8
Room 6	1	2	. .	3	4	. .	4	16	4
Toilet	. .	1	. .	1	1	. .	1	16	1
Stewards' office	2	1	. .	3	5	. .	5	16	5
Passage	. .	1	. .	1	1	. .	1	16	1
Reserved stores	1	. .	1	2	2	. .	2	16	2
Room 3	1	2	1	4	4	. .	4	16	4
Room 4	1	1	1	3	3	. .	3	16	3
Room 5	. .	2	. .	2	2	. .	2	16	2
Work-shop	1	1	1	3	3	. .	3	. .	4
Plaster-room	1	1	1	3	3	. .	3	16	3
Fan-room	1	5	. .	6	6	. .	6	16	6
Diet kitchen	1	1	. .	2	3	. .	3	16	3
Closet	1	. .	. .	1	1	. .	1	16	1
Nurses' class-room	2	2	. .	4	8	. .	8	16	8
Corridors	14	5	14	33	37	. .	37	16	37
Outside lantern	. .	1	1	2	2	. .	2	16	2
Totals	47	62	30	139	180	. .	180	. .	181

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
First Floor.									
Room 1	1	3	1	5	6	. .	6	16	6
Room 2	1	. .	1	2	. .	. .	2	16	2
Room 3	1	2	1	4	12	. .	12	. .	13
Room 4	1	1	1	3	9	. .	9	. .	10
Room 5	1	1	1	3	9	. .	9	. .	10
Room 6	1	1	1	3	9	. .	9	. .	10
Room 7	1	1	1	3	9	. .	9	. .	10
Room 8	1	3	1	5	15	. .	15	. .	18
Stairway	1	. .	1	2	2	. .	2	16	2
Room 9	1	2	1	4	5	. .	5	16	5
Room 10	1	1	. .	2	4	. .	4	16	4
Stairs	. .	1	. .	1	1	. .	1	16	1
Room 11	1	3	1	5	6	. .	6	16	6
Toilet	. .	1	. .	1	1	. .	1	16	1
Room 12	1	3	1	5	7	. .	7	16	7
Room 13	1	. .	1	2	1	. .	1	16	1
Room 14 (open corridor)	. .	2	2	4	2	. .	2	32	4
Room 15	. .	2	. .	2	2	. .	2	16	2
Toilet	. .	1	. .	1	1	. .	1	16	1
Room 16	. .	2	. .	2	2	. .	2	16	2
Toilet	. .	1	. .	1	1	. .	1	16	1
Carried forward	14	31	15	60	106	. .	106	. .	116

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	14	31	15	60	106	. .	106	. .	116
Room 17	1	1	1	3	3	. .	3	16	3
Room 18	2	. .	1	3	4	. .	4	16	4
Room 19	1	2	1	4	5	. .	5	. .	7
Room 20	2	. .	1	3	4	. .	4	16	4
Stairs	. .	1	. .	1	1	. .	1	16	1
Lavatory	. .	3	. .	3	3	. .	3	16	3
Wash-room	. .	2	. .	2	2	. .	2	16	2
Room 21	. .	1	. .	1	1	. .	1	16	1
Auditorium (and instrument closets)	3	2	3	8	8	. .	8	16	8
Room 22	. .	1	. .	1	1	. .	1	16	1
Toilets	. .	2	. .	2	2	. .	2	16	2
Surgeon's dressing-room . .	1	2	. .	3	5	. .	5	. .	6
Room 25	. .	2	. .	2	2	. .	2	32	4
Room 24	. .	1	. .	1	1	. .	1	32	2
Room 23	. .	2	. .	2	2	. .	2	32	4
Corridors	10	1	10	21	30	. .	30	. .	30
Lantern	. .	1	1	2	2	. .	2	16	2
Totals	34	55	33	122	182	. .	182	. .	200

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number 16-C. P. lamps.
Second Floor. (*Ward N.*)									
Room 1	. .	1	. .	1	2	. .	2	16	2
Room 2	. .	1	. .	1	2	. .	2	16	2
Bath-room	1	2	1	4	3	. .	3	16	3
Room 3	2	1	. .	3	7	. .	7	16	7
Lavatory	. .	1	. .	1	1	. .	1	16	1
Corridor	. .	4	. .	4	4	. .	4	16	4
Closet	. .	1	. .	1	1	. .	1	16	1
Room 4	. .	1	. .	1	2	. .	2	16	2
Room 5	. .	1	. .	1	2	. .	2	16	2
Room 6	. .	1	. .	1	2	. .	2	16	2
Room 7	. .	1	. .	1	2	. .	2	16	2
Room 8	. .	1	. .	1	2	. .	2	16	2
Stairs (switches downstairs)	1	1	. .	2	4	. .	4	16	4
Room 9	. .	2	. .	2	2	. .	2	16	2
Room 10	. .	2	. .	2	2	. .	2	16	2
Room 11	. .	4	. .	4	4	. .	4	16	4
Room 12	. .	2	2	4	2	. .	2	16	2
Cross corridor	1	. .	1	2	1	. .	1	16	1
Elevator	. .	1	. .	1	2	. .	2	16	2
Room 13	. .	3	. .	3	3	. .	3	16	3
Room 14	. .	2	. .	2	2	. .	2	16	2
Carried forward	6	32	4	42	52	. .	52	. .	52

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16 C. P. lamps.
Brought forward	6	32	4	42	52	..	52	..	52
Room 16	..	2	..	2	2	..	2	16	2
Corridor	4	..	4	8	5	..	5	16	5
Medicine-closet	..	1	..	1	1	..	1	16	1
Room 15	..	2	..	2	2	..	2	16	2
Stairs (switch downstairs)	1	1	1	3	6	..	6	16	6
Bath-room	1	2	..	3	3	..	3	16	3
Closet	..	1	..	1	1	..	1	16	1
Closet	..	1	..	1	1	..	1	16	1
Auditorium	2	7	2	11	37	..	37	..	52
Stairway (switch downstairs),	1	..	1	2	3	..	3	16	3
Room 17	..	2	..	2	2	..	2	16	2
Room 18	..	2	..	2	2	..	2	16	2
Totals	15	53	12	80	117	..	117	..	132
Third Floor. (*Ward O.*)									
Room 1	..	1	..	1	2	..	2	16	2
Room 2	..	1	..	1	2	..	2	16	2
Bath-room	1	2	1	4	3	..	3	16	3
Room 3	..	1	..	1	2	..	2	16	2
Room 4	..	1	..	1	2	..	2	16	2
Carried forward	1	6	1	8	11	..	11	..	11

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16 C. P. lamps.
Brought forward	1	6	1	8	11	..	11	..	11
Corridor	..	4	..	4	4	..	4	16	4
Room 5	..	1	..	1	2	..	2	16	2
Room 6	..	1	..	1	2	..	2	16	2
Room 7	..	1	..	1	2	..	2	16	2
Room 8	..	1	..	1	2	..	2	16	2
Room 9	..	1	..	1	2	..	2	16	2
Closet (in corridor)	..	1	..	1	1	..	1	16	1
Stairs	..	1	..	1	1	..	1	16	1
Room 11	..	2	..	2	2	..	2	16	2
Room 12	..	2	..	2	2	..	2	16	2
Room 13	..	3	..	3	3	..	3	16	3
Cross corridor	1	..	1	2	1	..	1	16	1
Room 14	..	1	1	2	1	..	1	16	1
Room 15	..	2	..	2	2	..	2	16	2
Closet (with shelves)	1	..	1	2	2	..	2	16	2
Room 16	..	2	..	2	2	..	2	16	2
Room 17	..	2	..	2	2	..	2	16	2
Corridor	4	..	4	8	6	..	6	16	6
Room 10	..	2	..	2	2	..	2	16	2
Stairway	..	1	..	1	1	..	1	16	1
Lavatory	1	3	1	5	4	..	4	16	4
Carried forward	8	37	9	54	57	..	57	..	57

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceilings.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	8	37	9	54	57	. .	57	. .	57
Closet	. .	1	. .	1	1	. .	1	16	1
Room 18	3	2	. .	5	9	. .	9	16	9
Room 19	. .	2	. .	2	2	. .	2	16	2
Room 20	. .	2	. .	2	2	. .	2	16	2
Totals	11	44	9	64	71	. .	71	. .	71

Summary.

Surgical Ward.									
Basement	47	62	30	139	180	. .	180	. .	184
First floor	34	55	33	122	62	120	182	. .	200
Second floor	15	53	12	80	117	. .	117	. .	132
Third floor	11	44	9	64	61	10	71	. .	71
Totals	107	214	84	405	550	. .	550	. .	584

Summary.

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Corridors between Surgical and Open Ward	. .	3	. .	3	3	. .	3	16	3

Total Summary.

Surgical Ward	107	214	84	405	550	. .	550	. .	584
Open Ward	36	86	. .	122	122	. .	122	. .	131
Corridors	. .	3	. .	3	3	. .	3	. .	3
Totals	143	303	84	530	675	. .	675	. .	718

MOTORS.

These specifications call for four electric motors to be used for operating ventilating fans.

The motors are to be of the following capacities:

Surgical Ward — Two of fifty horse-power each.

Open Ward — One of twenty-five horse-power.

Pathological Building — One of twenty-five horse-power.

The Contractor shall furnish and deliver at the several buildings satisfactory to and as directed by said Architect motors to the value of $3,400, with automatic rheostats. Itemized, the value of motors with rheostats will be:

For Surgical Ward	$2,200 00
" Open Ward	600 00
" Pathological Building	600 00

The Contractor shall set up the motors and rheostats ready to start.

He shall run a set of special mains from the main cutout boxes in the basement of the surgical ward and open ward to the motors in these buildings. He shall furnish and put in place on a neat board, near each motor, a double pole switch, ammeter, and fuse blocks, which shall be of the capacities necessary for satisfactory operation, and shall conform to the general rules for wiring in the wiring specifications.

BELLS AND SPEAKING-TUBES.

A complete list of bells and tubes, and the location of the same, is given at the ends of the specifications.

The locations of bells are indicated on the plans by the letter R. The locations of push buttons are indicated on plans by the letter P. The locations of speaking-tubes are indicated on plans by the letters S. T.

METHOD OF RUNNING WIRES.

All wires for electric bells are to be run in conduits.

CONDUIT.

Conduit is to be run in a similar manner to that used for the electric-light wires, except that metal-covered conduit need not be used, and in all cases a separate tube must be run for each wire.

WIRE.

No. 16 office wire is to be used throughout.

No joints will be allowed in concealed work.

BELLS, BATTERIES, ANNUNCIATORS, AND PUSH-BUTTONS.

Suitable supports must be provided for all bells, batteries, and annunciators.

Bells, batteries, annunciators, and push-buttons, must be of make and design approved by said Architect.

Under each drop shall be the name of the room in which the push-button controlling that drop is located, and said Contractor shall consult with said Architect in regard to the design and finish of each annunciator, before installing, as each must correspond with the finish of the room in which it is placed.

Each annunciator shall be of the number of drops which is specified in the location sheets, and shall be placed five feet six inches from the finished floor.

Under each annunciator shall be placed a varnished board of the same wood as the finish of the corridor in which it is situated, and of design approved by said Architect. On each of these boards all speaking-tube mouthpieces and push-buttons shall be placed which are marked at that point on the plans.

At every point where two or more push-buttons or mouthpieces are placed, they shall be set upon boards as described above.

All mouthpieces shall be nickel-plated, and shall be closed when not in use; no whistles shall be used.

Wherever there are two or more speaking tubes or push-buttons, they must be labelled to indicate the point to which the wires or tubes run.

Batteries for bells shall be placed in closed cabinets furnished and put in place by said Contractor, where deemed necessary by said Architect.

SPEAKING-TUBES.

Tubes must not project more than $\frac{3}{16}$ of an inch from the surface of the terra-cotta or brick wall.

Tubes must be secured in place by metal strips; staples or nails must not be used for this purpose in any case.

Tubes must be run as directly as possible from outlet to outlet, with only those turns which are absolutely necessary.

Hexagonal corners must be used in all cases. All tubes must be air tight, and all joints made so by use of white-lead.

Tubes must be run in such a way that there is no depression between outlets in which moisture may collect, and care must be taken to insure this.

Where tubes shall be subjected to dampness, they must be painted with P. B. paint, or its equivalent.

TELEPHONES.

A complete list of the telephones, and the location of the same, is given at the end of the specifications.

The location of telephones are indicated on the plans by the letter T.

The Contractor is simply to run the conduit for the telephone wires. This conduit is to be run in a similar manner to that used for electric-light wires. A single metal-covered tube is to be run from the location of each telephone to the basement of the building. After the plastering is completed the contractor must draw a pair of No. 14 rubber-covered wires through the tubes to make sure that they are clear.

OPEN WARD.

Annunciator on first floor with eight drops and one bell, actuated by push-buttons in the following rooms:

Two push-buttons in Open Ward.

Two push-buttons, one in each spare room.

One push-button in bath-room.

One push-button in basement, at speaking-tube at stairway.

One push-button on second floor, at speaking-tube in corridor.

The blank drop shall be connected up, and wires run to basement, and left with ends hanging, neatly taped, for future use.

Annunciator on second floor, with ten drops, and one bell, actuated by push-buttons in the following rooms:

Two push-buttons in Open Ward.

Three push-buttons, one in each spare room.

Push-button in bath-room.

Push-button on first floor, at speaking-tube in vestibule.

Push-button in basement, at speaking-tube at stairway.

Push-button in first-story ward.

Speaking-tube from basement stairway to second floor, with outlet on first floor.

At dumb waiter, from basement to first floor, bell and push button at each end.

At dumb waiter, from basement to second floor, bell and push-button at each end.

SURGICAL WARD.

BASEMENT.

Annunciator in Accident Supervisor's Office, with eight drops and one bell, drops to be actuated by push-buttons in the following rooms:

Push-button in Accident Room No. 1.
" " " " " " 2.
" " " " " " 3.

Push-button in Women's Accident Serving Room.
" " " Room No. 4.
" " " Museum.
Two drops left blank for future use.

SECOND FLOOR (WARD N).

Annunciator in corridor, outside duty-room, No. 13, with ten drops and one bell, drops to be actuated by push-buttons in the following rooms:

Push-buttons in Room 15.
" " " Bath-room.
" " " Room 9.
" " " " 10.
" " " " 11.
" " " " 14.
" " " " 16.
" " " " 17.
" " " " 18.
One drop left blank for future use.

THIRD FLOOR.

Annunciator in corridor, outside duty-room, No. 15, with twelve drops, to be actuated by push-buttons in the following rooms:

Push-buttons in Room 10.
" " " Bath-room.
" " " Room 11.
" " " " 12.
" " " " 13.
" " " " 16.
" " " " 17.
" " " " 18.
" " " " 19.
" " " " 20.
Two drops left blank for future use.

DUMB WAITER SERVICE.

One bell and three push-buttons at dumb waiter on each floor (basement, first, second, and third), the push-buttons to ring the bells on the three other floors in each case.

LOCATION OF BELLS IN SYSTEM FOR CALLING HOUSE OFFICERS.

(1.) Three push-buttons in first floor, Supervisor's Office, Room No. 17, each to ring bells simultaneously in the following places:

Push-button to ring bells simultaneously in each of the three floors of the Surgical Pavilion (Wards B, C, and D), in each of the three floors of the Surgical Ward (Wards M, N, and O), and in the Male Surgical Ward (Ward P), which will necessitate seven bells, one in each of the above locations.

Push-button to ring bells simultaneously in the new two-storied ward, in each isolating ward, and in Wards K and L, which will necessitate six bells, one in each of the above locations.

Push-button to ring bells simultaneously in Accident Room, lower floor, House Officers' corridor, second floor, and House Officer's corridor, third floor, which will necessitate three bells.

(2.) Four push-buttons in Accident Supervisor's Office, lower floor, to ring bells simultaneously in the following places:

Push-button to ring bells simultaneously in each of the following wards: Wards B, C, D, M, N, O, and P, seven bells.

Push-button to ring bells simultaneously in the new two-storied ward, the two isolating wards, and Wards K and L, six bells.

Push-button to ring bells simultaneously in House Officer's corridor, second floor, and House Officer's corridor, third floor, two bells.

Push-button to ring bell in Ward M corridor, for night use only, one bell.

In this system for calling House Officers the bells must be so made that a pressure of the push-button will cause only one strike of the hammer, in order that each officer may be called by a certain number of strokes of the bell.

EXPLANATION.

Ward B . . .	Surgical Pavilion (1st floor).
" C . . .	" " (2d floor).
" D . . .	" " (3d floor).
" K . . .	(no name.)
" L . . .	(no name.)
" M . . .	Surgical Ward (first floor).
" N . . .	" " (second floor).
" O . . .	Children's Surgical Ward (3d floor).
" P . . .	Male Surgical Ward.

All bells in the first system of calling House Officers (from Supervisor's Office, first floor) are shown by the letter H on the plans, all those in the second (from Accident Supervisor's Office, lower floor) by the letter "K."

SYSTEM OF SPEAKING-TUBES AND BELLS IN SURGICAL WARD.

One speaking-tube from the long corridor of the first floor to each of the House Officers' rooms on the second floor, and to each of the House Officers rooms on the third floor. These rooms are numbered as follows:

Second floor, Nos. 1, 2, 3, 4, 5, 6, 7, and 8.

Third floor, Nos. 1, 2, 3, 4, 5, 6, 7, 8, and 9.

A seventeen-drop annunciator shall be placed in the long corridor over the speaking-tubes each drop being operated by a push-button in one of the above rooms. There shall also be

a bell in each of the above rooms to be rung from a push button near the speaking-tube in the long corridor.

LOCATION OF TELEPHONES.

SURGICAL WARD.

Basement — Supervisor's room	1	
Accident Wards	1	
	—	2
First Floor— Supervisor's Office marked "Room 17"	1	
Corridor	1	
	—	2
Second Floor — Room No. 6, House Officer's Room	1	
Room No. 8, Night Surgeon's Room	1	
Room No. 13, Duty Room	1	
	—	3
Third Floor — Room No. 15, Duty Room	1	
	—	1
		8

OPEN WARD BUILDING.

First Floor Ward Office	1	
Second Floor Ward Office	1	
	—	2

SUMMARY OF TELEPHONES.

Surgical Ward	8	
Open Ward Building	2	
	—	10

Part No. 4.

WIRING THE OLD BUILDINGS.

GENERAL.

Said Contractor shall furnish and install all wires, tubes, insulators, supports, cut-outs, switches, fixtures, shades, shade-holders, lamps, and all other material necessary for a complete electric wiring installation from the main cut-out cabinets in the basements to the lamps.

Said Contractor shall provide and set in place fixtures, shades, shade-holders, torches, etc., to the value of two thousand five hundred dollars ($2,500), to be delivered unwired and provided with improved insulating joints as directed by said Architect.

In wiring it may be necessary to complete the work in one room or group of rooms before commencing in another, or as per the directions of said Architect.

MAINS, RISERS, AND TAP-CIRCUITS.

LIBRARY BUILDING.

A single set of risers shall be run from the main cut-out cabinet in the basement to a second cut-out cabinet near the ceiling of the first floor. All tap circuits shall be run from these two cut-out cabinets.

NURSES' HOME. — (New Dormitory.)

From the main cut-out cabinet in the basement two sets of mains shall be run to each of the two points marked "Risers" on the basement plan. From each of these points two sets of risers shall be run to the top of the building. One set of risers at each end of the building shall be controlled by the switch on the first floor for turning off the sleeping-room lights. Cut-out cabinets shall be placed on the risers at each floor, and all tap circuits shall be run from these cut-out cabinets.

MEDICAL BUILDING.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From these two points, risers shall be run up to the top of the building. Cut-out cabinets shall be placed on the risers at each floor, and all tap circuits shall be run from these cut-out cabinets.

SURGICAL OUT-PATIENTS' BUILDING.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From these two points risers shall be run to the top of the building.

Cut-out cabinets shall be placed on the risers at the north-west end of the building on each floor, and on the risers at the south-east end of the building in the basement, and on the first floor. All tap-circuits shall be run from these cabinets.

ADMINISTRATION BUILDING.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From these two points risers shall be run up to the top of the building. Cut-out cabinets shall be placed on the risers on each floor. All tap-circuits shall be run from these cut-out cabinets.

WARDS B, C, D.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From these two points risers shall be run to the top of the building. Cut-out cabinets shall be placed on the risers on each floor. All tap-circuits shall run from these cut-out cabinets.

WARDS F, G, H.

Wired the same as Wards B, C, D.

WARD P.

From the main cut-out cabinet a single set of risers shall be run up to the top of the building. A cut-out cabinet shall be placed on the risers on each floor. All tap-circuits shall run from these cut-out cabinets.

WARD T.

Wired same as Ward P.

WARDS K AND L.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From each of these two points a set of risers shall be run up to the top of the building. Cut-out cabinets shall be placed on the risers on each floor. All tap-circuits shall be run from these cabinets.

WARD A.

From the main cut-out cabinet a set of mains shall be run to each of the two points marked "Risers" on the basement plan. From these two points risers shall be run to the top of the building. Cut-out cabinets shall be placed on the risers on each floor. All tap-circuits shall be run from these cut-out cabinets.

WARD E.

Wired same as Ward A.

MEDICAL OUT-PATIENTS' BUILDING.

From the main cut-out cabinet in the basement a set of mains shall be run to each of the two points marked "Risers" on the basement plans. From these two points risers shall be run to the top of the building. Cut-out cabinets shall be placed on the risers on each floor. All tap circuits shall run from these cut-out cabinets.

KITCHEN AND BAKERY.

A cut-out cabinet shall be placed at the point indicated on plan from which all tap circuits shall be run.

LAUNDRY, BOILER-HOUSE, AND MORGUE.

From the main cut-out cabinet at the staircase in the laundry, four sets of mains will be run to four cut-out cabi-

nets located as shown on plans; one in the laundry on the first floor, one in the boiler-house, one in the morgue, and one on the second floor of the laundry.

All tap circuits shall be run from these cut-out cabinets.

STABLE.

The main cut-out cabinet shall be placed in the loafing-room at the point indicated on first floor plan.

A set of risers shall be run from this cabinet to another placed in the passage on the second floor at point indicated on plans. All tap circuits shall be fed from these two cut-out cabinets.

METHOD OF WIRING.

Wherever it is possible wires shall be run overhead in unfinished lofts or attics on porcelain cleats or insulators; wherever this is not possible, with the exception of in the first and second floors of the Administration building, the wires shall be run in wooden mouldings.

For the lights on the first and second floors of the Administration building, the wires shall be run as much as possible in the walls and in the space between the floors and ceilings on porcelain insulators. The Contractor shall furnish all implements, labor, and materials necessary for taking up and relaying the floors for this purpose.

WIRING ON CLEATS AND INSULATORS.

All insulators or cleats shall be of porcelain or glass and shall be held in place by screws.

In no case shall insulators or cleats be placed more than three feet apart, and when placed on the upper side of timbers, boards, etc., shall be so installed that the wires shall have at all points between insulators at least one and one-half inches of clear air space beneath them.

LOSS OF POTENTIAL.

The total loss of potential between the main cut-outs in the basements and any light shall not be greater than 1½ volts nor less than 1 volt under full load on the two-wire system.

CARRYING CAPACITY.

The carrying capacity of all wires, switches, and cut-outs, must be so calculated that they shall carry continuously the maximum load without in any case increasing in temperature more than 15 degrees centigrade above the surrounding air.

INSULATION RESISTANCE.

The total insulation resistance from the ground of the entire installation in each building shall be greater than 500,000 ohms, the resistance between mains with switches closed and the lamps out shall be of an equal amount.

WIRE.

The Contractor is to specify the make or makes of wire which he proposes to use throughout the installation. The wire is to be rubber covered, and protected by an outside braiding.

In no case shall more than ten 16-candle power lamps, or their equivalent, be fed from the same tap circuit.

Flexible cord or twin wire must not be used under any contions without the written consent of said Architect.

All wires not run in conduit must be protected by bushings, of porcelain, interior conduit or other satisfactory material, when passing through floors, walls, or woodwork.

No joints will be allowed in concealed work.

CUT-OUTS.

All fuse boxes and cut-outs are to be double pole, or single pole if one is provided for each main. They are to be con-

structed of slate or porcelain and the poles are to be separated by a distance sufficient to prevent the possibility of arcing when the fuse blows.

All cut-outs shall be placed in cabinets furnished with locks and keys. These cabinets shall be made of wood lined throughwith asbestos one-fourth of an inch thick. The cabinets shall be made of the same kind of wood as that used in the finish of the room in which they are placed and shall be finished in the same manner. The cabinets shall be made as small as possible and of neat and inconspicuous design.

The main cut-out cabinets shall be left so that the only thing necessary to complete the work will be to run the mains from the dynamo-room into the box and connect them to a single set of terminals.

FIXTURES.

The following buildings shall be supplied with new fixtures throughout:

Wards B, C, D.
Wards F, G, H.
Medical building.
Ward P.
Ward T.
Wards K and L.
Administration building.

In the other buildings the present fixtures will be used, or they will be replaced by fixtures from the buildings which are to be supplied with new fixtures.

Said Contractor shall take down all of the present fixtures which are to be used again, supply them with insulating joints, and rehang them either in their former location, or some other, as may be directed by said Architect. He shall wire all of the present fixtures which are to be used running the wires on the outside of the fixtures, and shall furnish and install on these fixtures some suitable device for supporting the sockets, lamps,

and shades. He shall take down all of the old fixtures which are not to be used again, and shall deliver them at any part of the Hospital grounds which may be designated by said Architect. He shall furnish a suitable support for all fixtures where there is no gas-pipe, and he shall make all connections between the tap circuits and the wiring of the fixtures.

LOCATION SHEET.

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
ADMINISTRATION BUILDING.									
Basement.									
Room No. 1	2	2	..	4	10	..	10	16	10
Room No. 2	1	1	..	2	3	..	3	16	3
Room No. 3	1	..	..	1	1	..	1	16	1
Room No. 4	1	1	..	2	4	..	4	16	4
Room No. 5	..	1	..	1	1	..	1	16	1
Room No. 6	1	..	..	1	1	..	1	16	1
Room No. 7	..	1	..	1	1	..	1	16	1
Hallway	1	..	..	1	3	..	3	16	3
Closet under stairs	1	..	..	1	1	..	1	16	1
Room No. 8	1	..	..	1	1	..	1	16	1
Room No. 9	1	..	..	1	1	..	1	16	1
Room No. 10	3	2	..	5	7	..	7	16	7
Room No. 11	3	..	1	4	11	..	11	16	11
Room No. 12	2	3	..	5	7	..	7	16	7
Room No. 13	..	1	..	1	1	..	1	16	1
Room No. 14	2	2	..	4	10	..	10	16	10
Room No. 15	..	2	..	2	2	..	2	16	2
Room No. 16	1	..	..	1	1	..	1	32	2
Room No. 17	1	..	..	1	2	..	2	16	2
Carried forward	22	16	1	39	68	..	68	..	69

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward	22	16	1	39	68	. .	68	. .	69
Room No. 18	3	. .	. .	3	3	. .	3	16	3
Medical stores	6	. .	. .	6	6	. .	6	16	6
Totals	31	16	1	48	77	. .	77	. .	78
First Floor.									
Room No. 19	1	3	. .	4	9	. .	9	16	9
Room No. 20	. .	2	. .	2	2	. .	2	16	2
Room No. 21	. .	1	. .	1	1	. .	1	16	1
Room No. 22	. .	1	. .	1	1	. .	1	16	1
Room No. 23	. .	1	. .	1	1	. .	1	16	1
Room No. 24	1	4	. .	5	10	. .	10	16	10
Staircase hall	. .	2	. .	2	3	. .	3	16	3
Porch	1	. .	1	2	2	. .	2	16	2
Stairway (No. 25)	. .	2	1	3	2	. .	2	16	2
Room No. 26	4	2	3	9	14	. .	14	16	14
Room No. 27	1	8	1	10	17	. .	17	16	17
Room No. 28	1	1	3	5	5	. .	5	16	5
Room No. 29	1	2	. .	3	5	. .	5	16	5
Room No. 30	1	3	1	5	10	. .	10	16	10
Lamp-posts on steps	. .	2	. .	2	4	. .	4	16	4
Totals	11	34	10	55	86	. .	86	. .	86

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16 C.P. lamps.
Second Floor.									
Room No. 31	1	3	1	5	7	. .	7	16	7
Room No. 32	1	. .	. .	1	2	. .	2	16	2
Room No. 33	. .	1	. .	1	1	. .	1	16	1
Room No. 34	. .	1	. .	1	1	. .	1	16	1
Room No. 35	1	5	1	7	9	. .	9	16	9
Room No. 36 (and landing)	2	3	1	6	10	. .	10	16	10
Room No. 37	1	1	. .	2	5	. .	5	16	5
Room No. 38	1	1	. .	2	4	. .	4	16	4
Room No. 39	. .	2	. .	2	2	. .	2	. .	3
Room No. 40	1	1	1	3	4	. .	4	16	4
Room No. 41	1	. .	1	2	4	. .	4	16	4
Room No. 42	1	3	1	5	6	. .	6	16	6
Totals	10	21	6	37	55	. .	55	. .	56
Third Floor.									
Room No. 43	2	. .	1	3	3	. .	3	16	3
Room No. 44	. .	1	. .	1	1	. .	1	16	1
Room No. 45	1	. .	. .	1	1	. .	1	16	1
Room No. 46	. .	1	. .	1	2	. .	2	16	2
Room No. 48	. .	2	. .	2	2	. .	2	16	2
Carried forward	3	4	1	8	9	. .	9	. .	9

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C.P. lamps.
Brought forward . . .	3	4	1	8	9	. .	9	. .	9
Room No. 49	1	. .	. .	1	3	. .	3	16	3
Room No. 50	1	. .	. .	1	1	. .	1	32	2
Room No. 51	. .	1	. .	1	1	. .	1	16	1
Room No. 52	1	2	. .	3	5	. .	5	16	5
Room No. 53	1	. .	. .	1	2	. .	2	16	2
Room No. 54	1	. .	. .	1	1	. .	1	32	2
Room No. 55	. .	1	.	1	1	. .	1	16	1
Room No. 56	. .	1	. .	1	1	. .	1	16	1
Room No. 57	1	. .	. .	1	3	. .	3	16	3
Totals	9	9	1	19	27	. .	27	. .	29

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16 C. P. lamps.
Medical Building.									
Basement.									
Room No. ½	1	. .	. .	1	2	. .	2	16	2
Room No. 1	2	2	1	5	6	. .	6	16	6
Corridor	. .	2	. .	2	3	. .	3	16	3
Room No. 2	1	7	. .	8	10	. .	10	. .	12
Room No. 3	2	1	. .	3	5	. .	5	16	5
Room No. 4	3	1	1	5	9	. .	9	16	9
Room No. 5	1	1	. .	2	5	. .	5	16	5
Room No. 6	. .	1	. .	1	1	. .	1	16	1
Room No. 7	1	3	. .	4	5	. .	5	16	5
Corridor	1	. .	. .	1	2	. .	2	16	2
Room No. 8	. .	1	. .	1	1	. .	1	16	1
Room No. 9	1	2	1	4	3	. .	3	16	3
Room No. 10	1	4	. .	5	7	. .	7	16	7
Totals	14	25	3	42	59	. .	59	. .	61
First Floor.									
Room No. 11	1	1	. .	2	3	. .	3	16	3
Room No. 12	1	1	. .	2	3	. .	3	16	3
Room No. 13	. .	10	. .	10	10	. .	10	. .	11
Carried forward	2	12	. .	14	16	. .	16	. .	17

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16 C. P. lamps.
Brought forward	2	12	..	14	16	..	16	..	17
Room No. 14	..	1	..	1	1	..	1	16	1
Room No. 15	1	1	..	2	3	..	3	16	3
Room No. 16	1	1	..	2	3	..	3	16	3
Room No. 17	4	2	1	7	11	..	11	16	11
Room No. 18	1	2	..	3	4	..	4	16	4
Room No. 19	1	1	..	2	3	..	3	16	3
Room No. 20	..	1	..	1	1	..	1	16	1
Room No. 21	1	1	..	2	4	..	4	16	4
Room No. 22	..	1	1	2	1	..	1	16	1
Room No. 23	..	3	..	3	3	..	3	16	3
Room No. 24	1	2	..	3	6	..	6	16	6
Room No. 25	1	1	..	2	4	..	4	16	4
Intermediate bath-room	..	1	..	1	1	..	1	16	1
Hall	1	..	..	1	2	..	2	16	2
Totals	14	30	2	46	63	..	63	..	64
Second Floor.									
Room No. 26	..	2	..	2	2	..	2	16	2
Room No. 27	..	2	..	2	2	..	2	16	2
Room No. 28	..	2	..	2	2	..	2	16	2
Carried forward	..	6	..	6	6	..	6	..	6

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	. .	6	. .	6	6	. .	6	. .	6
Room No. 29	. .	10	. .	10	12	. .	12	16	12
Room No. 30	. .	2	. .	2	2	. .	2	16	2
Room No. 31	. .	2	. .	2	2	. .	2	16	2
Room No. 32	. .	2	. .	2	2	. .	2	16	2
Room No. 33	4	1	. .	5	10	. .	10	16	10
Room No. 34	. .	2	. .	2	2	. .	2	16	2
Room No. 35	. .	2	. .	2	2	. .	2	16	2
Room No. 36	. .	1	. .	1	1	. .	1	16	1
Room No. 37	1	. .	. .	1	1	. .	1	16	1
Room No. 38	1	1	. .	2	3	. .	3	16	3
Hall	1	1	1	3	4	. .	4	16	4
Room No. 39	. .	1	. .	1	1	. .	1	16	1
Room No. 40	. .	2	. .	2	3	. .	3	16	3
Room No. 41	1	1	. .	2	2	. .	2	16	2
Room No. 42	1	2	. .	3	4	. .	4	16	4
Totals	9	36	1	46	57	. .	57	. .	57
Attic Floor.									
Room No. 43	. .	2	. .	2	2	. .	2	16	2
Room No. 44	. .	2	. .	2	2	. .	2	16	2
Room No. 45	. .	9	. .	9	9	. .	9	. .	12
Carried forward . . .	. .	13	. .	13	13	. .	13	. .	16

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	. .	13	. .	13	13	. .	13	. .	16
Room No. 46	. .	1	. .	1	1	. .	1	16	1
Room No. 47	1	2	. .	3	7	. .	7	. .	8
Room No. 48	4	1	. .	5	10	. .	10	16	10
Room No. 49	. .	2	. .	2	2	. .	2	16	2
Room No. 50	. .	2	. .	2	2	. .	2	16	2
Room No. 51	. .	1	. .	1	1	. .	1	16	1
Room No. 52	1	. .	1	2	2	. .	2	16	2
Room No. 53	1	1	1	3	3	. .	3	16	3
Elevator	1	. .	. .	1	2	. .	2	16	2
Hall	1	1	1	3	4	. .	4	16	4
Room No. 54	1	1	1	3	5	. .	5	16	5
Room No. 55	. .	1	. .	1	1	. .	1	16	1
Room No. 56	1	. .	. .	1	1	. .	1	16	1
Room No. 57	. .	2	. .	2	2	. .	2	16	2
Room No. 58	. .	2	. .	2	2	. .	2	16	2
Totals	11	30	4	45	58	. .	58	. .	62

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Library Building.									
Basement.									
Corridors	1	4	..	5	7	..	7	16	7
Room No. 1	1	..	..	1	2	..	2	16	2
Room No. 2	2	..	..	2	3	..	3	16	3
Room No. 3	4	..	..	4	12	..	12	16	12
Room No. 4	1	1	..	2	3	..	3	16	3
Room No. 5	2	..	..	2	4	..	4	16	4
Totals	11	5	..	16	31	..	31	..	31
First Floor.									
Room No. 6	1	..	..	1	4	..	4	16	4
Room No. 7	1	..	..	1	4	..	4	16	4
Room No. 8 (corridor)	2	..	1	3	4	..	4	16	4
Room No. 9	1	..	..	1	2	..	2	16	2
Room No. 10	1	..	1	2	4	..	4	16	4
Room No. 11	1	10	5	16	10	18	28	16	28
Totals	7	10	7	24	28	18	46	..	46

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Wards A and E.									
Basement.									
Room No. 1	1	..	..	1	2	..	2	16	2
Room No. 2	1	1	..	2	3	..	3	16	3
Room No. 3	2	..	..	2	4	..	4	16	4
Room No. 4	..	4	..	4	4	..	4	16	4
Room No. 5	1	..	..	1	2	..	2	16	2
Room No. 6	1	1	..	2	3	..	3	..	4
Room No. 7	..	4	..	4	4	..	4	16	4
Room No. 8	1	..	..	1	2	..	2	16	2
Room No. 9	..	2	..	2	2	..	2	16	2
Room No. 10 (switch for fumigating rooms)	2	..	1	3	3	..	3	16	3
Room No. 11	1	..	..	1	2	..	2	16	2
Totals	10	12	1	23	31	..	31	..	32
First Floor.									
Room No. 12	1	..	1	2	1	..	1	16	1
Room No. 13	..	1	..	1	1	..	1	16	1
Room No. 14	1	..	..	1	2	..	2	16	2
Room No. 15	1	..	..	1	2	..	2	16	2
Room No. 16	2	..	..	2	4	..	4	16	4
Carried forward	5	1	1	7	10	..	10	..	10

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	5	1	1	7	10	.	10	. .	10
Room No. 17	1	1	. .	2	3	. .	3	16	3
Room No. 18	1	1	. .	2	3	. .	3	16	3
Room No. 19	. .	1	. .	1	1	. .	1	16	1
Room No. 20	2	8	. .	10	16	. .	16	16	16
Room No. 21 (and medical closet	1	1	. .	2	6	. .	6	16	6
Room No. 22	1	. .	1	2	2	. .	2	16	2
Room No. 23	1	. .	1	2	1	. .	1	16	1
Room No. 24	1	. .	1	2	1	. .	1	16	1
Room No. 25	1	. .	1	2	2	. .	2	16	2
Room No. 26	1	. .	1	2	3	. .	3	16	3
Room No. 27	1	. .	1	2	2	. .	2	16	2
Porch	. .	1	1	2	1	. .	1	16	1
Room No 28	2	12	. .	14	20	. .	20	16	20
Room No. 29	1	. .	. .	1	2	. .	2	16	2
Room No. 30	1	. .	. .	1	2	. .	2	16	2
Room No. 31	1	. .	1	2	1	. .	1	16	1
Room No. 32	. .	1	. .	1	1	. .	1	16	1
Room No. 33	2	. .	. .	2	4	. .	4	16	4
Room No. 34	. .	1	. .	1	1	. .	1	16	1
Room No. 35	1	1	. .	2	2	. .	2	16	2
Room No. 36	1	1	. .	2	2	. .	2	16	2
Piazza	2	. .	2	4	3	. .	3	16	3
Totals	27	30	11	68	89	. .	89	. .	89

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Second Floor.									
Room No. 37	2	. .	1	3	2	.	2	16	2
Room No. 38	. .	1	. .	1	1	. .	1	16	1
Room No. 39	1	1	. .	2	3	. .	3	16	3
Room No. 40	2	. .	. .	2	2	. .	2	16	2
Room No. 41	1	. .	. .	1	2	. .	2	16	2
Room No. 42	1	. .	. .	1	2	. .	2	16	2
Room No. 43	. .	1	. .	1	1	. .	1	16	1
Room No. 44	Three lights located later.						. .	. .	3
Room No. 45	Three lights located later.						. .	. .	3
Room No. 46	1	1	. .	2	3	. .	3	16	3
Room No. 47	1	. .	. .	1	1	. .	1	16	1
Room No. 48	2	. .	1	3	2	. .	2	16	2
Room No. 49	2	. .	. .	2	2	. .	2	16	2
Room No. 50	. .	1	. .	1	1	. .	1	16	1
Room No. 51	1	. .	. .	1	2	. .	2	16	2
Room No. 52	1	. .	. .	1	2	. .	2	16	2
Totals	15	8	2	25	29	. .	29	. .	29

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Wards B, C, D, — F, G, H.									
Basement.									
Room No. 1	1	..	..	1	1	..	1	16	1
Room No. 2	1	..	..	1	1	..	1	16	1
Room No. 3	1	..	..	1	1	..	1	16	1
Room No. 4	2	..	..	2	2	..	2	16	2
Room No. 5	1	..	..	1	1	..	1	16	1
Room No. 6	1	..	..	1	1	..	1	16	1
Room No. 7	1	..	..	1	1	..	1	16	1
Room No. 9	..	1	..	1	1	..	1	16	1
Rooms Nos. 10 & 11 (corridor)	..	6	..	6	6	..	6	16	6
Room No. 12	1	1	..	2	2	..	2	16	2
Room No. 13	1	1	..	2	2	..	2	16	2
Room No. 14	1	..	..	1	1	..	1	16	1
Room No. 15	..	2	..	2	2	..	2	16	2
Room No. 16	1	..	..	1	1	..	1	16	1
Room No. 17	1	..	..	1	1	..	1	16	1
Room No. 18	..	2	..	2	2	..	2	16	2
Totals	13	13	..	26	26	..	26	..	26

LOCATION SHEET. — *Continued*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
First Floor.									
Room No. 19	2	1	..	3	3	..	3	..	4
Room No. 20	1	3	1	5	5	..	5	16	5
Room No. 21	2	..	1	3	2	..	2	16	2
Room No. 22	1	1	..	2	4	..	4	16	4
Room No. 23	4	16	..	20	20	..	20	..	24
Room No. 24	1	..	..	1	3	..	3	16	3
Room No. 25	..	1	..	1	1	..	1	16	1
Room No. 26	1	..	1	2	1	..	1	32	2
Stairway	..	1	..	1	1	..	1	16	1
Room No. 27	..	2	..	2	2	..	2	16	2
Room No. 28	..	1	..	1	1	..	1	16	1
Room No. 29	..	2	..	2	2	..	2	16	2
Totals	12	28	3	43	45	..	45	..	51

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Second Floor.									
Room No. 30	. .	1	. .	1	1	. .	1	16	1
Room No. 31	. .	1	. .	1	1	. .	1	16	1
Room No. 32	. .	2	. .	2	2	. .	2	16	2
Room No. 33	1	. .	. .	1	1	. .	1	32	2
Room No. 34	. .	1	. .	1	1	. .	1	16	1
Stairway	. .	1	. .	1	1	. .	1	16	1
Room No. 35	1	. .	. .	1	1	. .	1	16	1
Room No. 36	4	16	. .	20	20	. .	20	. .	24
Room No. 37	1	. .	. .	1	1	. .	1	16	1
Room No. 38	2	. .	1	3	2	. .	2	16	2
Room No. 39	1	4	2	7	5	. .	5	. .	6
Room No. 40	1	1	. .	2	2	. .	2	. .	3
Stairway	. .	1	. .	1	1	. .	1	16	1
Totals	11	28	3	42	39	. .	39	. .	46
Third Floor.									
Room No. 41	. .	2	. .	2	2	. .	2	16	2
Room No. 42	. .	1	. .	1	1	. .	1	16	1
Room No. 43	. .	1	. .	1	1	. .	1	16	1
Room No. 44	1	. .	. .	1	1	. .	1	32	2
Carried forward	1	4	. .	5	5	. .	5	. .	6

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	1	4	. .	5	5	. .	5	. .	6
Room No. 45	1	1	. .	2	3	. .	3	16	3
Stairway	. .	1	. .	1	1	. .	1	16	1
Room No. 46	. .	16	. .	16	16	. .	16	. .	20
Room No. 47	1	1	. .	2	4	. .	4	16	4
Room No. 48	2	. .	1	3	2	. .	2	16	2
Room No. 49	1	2	2	5	3	. .	3	. .	5
Room No. 50	1	1	. .	2	3	. .	3	16	3
Stairway	. .	1	. .	1	1	. .	1	16	1
Totals	7	27	3	37	38	. .	38	. .	45

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Sides.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamp.	Equivalent number, 16-C. P. lamps.
WARDS K AND L.									
Basement.									
Room under bath-room		1		1	1		1	16	1
Room No. 1		1		1	1		1	16	1
Room No. 2		3		3	3		3	16	3
Room No. 3		1		1	1		1	16	1
Room No. 4		1		1	1		1	16	1
Room No. 5		1		1	1		1	16	1
Room No. 6		1		1	1		1	16	1
Room No. 7 (corridor)		6		6	6		6	16	6
Room No. 8		1		1	1		1	16	1
Room No. 9, Room No. 10, Room No. 11, Room No. 12, Room No. 13, Room No. 14 — six lights to be located later		6		6	6		6	16	6
Totals		22		22	22		22		22

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Ward K.									
Room No. 15		2		2	2		2		3
Room No. 16		2		2	2		2		3
Room No. 17		2		2	2		2		3
Room No. 18		2		2	2		2		3
Room No. 19		2		2	2		2		3
Room No. 20		2		2	3		3		4
Room No. 21		1		1	1		1	16	1
Room No. 22		1		1	1		1	16	1
Room No. 23	1			1	1		1	16	1
Room No. 24		1		1	1		1	16	1
Room No. 25 (Hall)	3	9	1	13	19		19		22
Room No. 26		2		2	2		2		3
Room No. 27		2		2	2		2		3
Room No. 28		2		2	2		2		3
Room No. 29		2		2	2		2		3
Room No. 30		2		2	2		2		3
Room No. 31	1	2		3	4		4	16	4
Room No. 32		1		1	1		1	16	1
Closet under stairs	1			1	1		1	16	1
Room No. 33		2		2	3		3	16	3
Totals	6	39	1	46	55		55		69

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps	Equivalent number, 16-C. P. lamps.
Ward L.									
Room No. 34		3		3	3		3	16	3
Room No. 35 (Duty room)	1	1		2	5		5	16	5
Room No. 36		2		2	2		2	32	4
Room No. 37		2		2	2		2	32	4
Room No. 38		2		2	2		2	32	4
Room No. 39		2		2	2		2	32	4
Room No 40		2		2	2		2	32	4
Room No. 41 (Hall)	3	9	2	14	22		22		24
Room No. 42		1		1	1		1	16	1
Room No. 43		2		2	2		2	16	2
Room No. 44		1		1	1		1	16	1
Room No. 45		1		1	1		1	16	1
Room No. 46		2		2	2		2	32	4
Room No. 47		2		2	2		2	32	4
Room No. 48		2		2	2		2	32	4
Room No. 49		2		2	2		2	32	4
Room No. 50		2		2	2		2	32	4
Room No. 51		2		2	2		2	32	4
Three lights to be located later over Room No. 34		3		3	3		3	16	3
Three lights to be located later over Room No. 45		3		3	3		3	16	3
Totals	4	46	2	52	63		63		87

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C. P. of lamps.	Equivalent number, 16 P. C. lamps.
Ward T.									
Cellar.									
Room No. 1	5	. .	. .	5	5	. .	5	16	5
Room No. 2	2	. .	. .	2	6	. .	6	16	6
Room No. 3	1	. .	. .	1	1	. .	1	16	1
Corridor	1	. .	. .	1	2	. .	2	16	2
Room No. 4	1	. .	. .	1	1	. .	1	16	1
Room No. 5	1	. .	. .	1	1	. .	1	16	1
Totals	11	. .	. .	11	16	. .	16	. .	16
First Floor.									
Room No. 6	2	. .	. .	2	2	. .	2	16	2
Room No. 7	1	1	. .	2	3	. .	3	16	3
Room No. 8	3	. .	1	4	3	. .	3	16	3
Room No. 9	. .	14	. .	14	14	. .	14	16	14
Room No. 10	1	. .	. .	1	3	. .	3	16	3
Room No. 11	1	1	. .	2	3	. .	3	16	3
Room No. 12	1	1	. .	2	3	. .	3	16	3
Room No. 13	1	. .	. .	1	3	. .	3	16	3
Room No. 14	. .	1	. .	1	1	. .	1	16	1
Room No. 15	1	. .	1	2	1	. .	1	16	1
Carried forward	11	18	2	31	36	. .	36	. .	36

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceilings.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	11	18	2	31	36	. .	36	. .	36
Room No. 16	1	. .	1	2	1	. .	1	16	1
Stairway	. .	1	. .	1	1	. .	1	16	1
Corridor	1	. .	1	2	3	. .	3	16	3
Totals	13	19	4	36	41	. .	41	. .	41
Second Floor.									
Room No. 17	1	. .	. .	1	2	. .	2	16	2
Room No. 18	1	. .	. .	1	2	. .	2	16	2
Room No. 19	1	. .	. .	1	1	. .	1	16	1
Room No. 20	1	. .	. .	1	2	. .	2	16	2
Room No. 21	. .	1	. .	1	1	. .	1	16	1
Room No. 22	. .	1	. .	1	1	. .	1	16	1
Totals	4	2	. .	6	9	. .	9	. .	9
Ward P.									
Exactly like Ward T.									
Totals	28	21	4	53	66	. .	66	. .	66

LOCATION SHEET.— *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16 C.P. lamps.
Out-Patients' Department.									
Basement.									
Room No. 1	1	1	..	2	2	..	2	16	2
Room No. 2	1	1	..	2	2	..	2	16	2
Room No. 3	..	2	..	2	2	..	2	16	2
Room No. 4	1	1	..	2	2	..	2	16	2
Room No 5	2	..	..	2	2	..	2	16	2
Room No. 6	1	1	..	2	2	..	2	16	2
Room No. 7	..	1	..	1	1	.	1	16	1
Room No 8	1	1	..	2	2	..	2	16	2
Room No. 9	1	..	..	1	1	..	1	16	1
Room No. 10	1	..	..	1	1	..	1	16	1
Room No. 11	1	..	..	1	1	..	1	16	1
Totals	10	8	..	18	18	..	18	..	18
First Floor.									
Porch and Vestibule	2	..	1	3	..	4	4	16	4
Room No. 12	2	..	..	2	8	..	8	16	8
Side Door	..	1	1	2	..	3	3	16	3
Room No. 13	1	1	..	2	4	..	4	16	4
Room No. 14	1	2	..	3	4	..	4	..	8
Carried forward	6	4	2	12	16	7	23	..	27

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward	6	4	2	12	16	7	23	. .	27
Room No 15	1	1	. .	2	6	. .	6	16	6
Room No. 16	1	. .	. .	1	4	. .	4	16	4
Room No. 17	1	1	. .	2	3	. .	3	16	3
Room No. 18	3	6	. .	9	24	. .	24	16	24
Stairway	. .	1	. .	1	1	. .	1	16	1
Totals	12	13	2	27	54	7	61	. .	65
Second Floor.									
Room No. 19	1	1	. .	2	3	. .	3	16	3
Room No. 20	1	1	. .	2	3	. .	3	16	3
Room No. 21 (plug and cord for wall socket)	1	1	. .	2	3	. .	3	16	3
Room No. 22 (plug and cord for wall socket)	1	1	. .	2	4	. .	4	16	4
Room No. 23	1	. .	. .	1	2	. .	2	16	2
Room No. 24 (plug and cord for wall socket)	1	1	. .	2	6	. .	6	16	6
Room No. 25	1	1	. .	2	4	. .	4	16	4
Room No. 26	1	. .	. .	1	5	. .	5	16	5
Room No. 27	3	3	. .	6	21	. .	21	16	21
Stairs	1	. .	. .	1	2	. .	2	16	2
Totals	12	9	. .	21	53	. .	53	. .	53

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. Lamps.
Third Floor.									
Room No. 29	1	..	..	1	4	..	4	16	4
Room No. 30	1	..	..	1	2	..	2	16	2
Room No. 31	1	..	..	1	2	..	2	16	2
Room No. 32	1	..	..	1	2	..	2	16	2
Room No. 33	1	..	..	1	2	..	2	16	2
Room No. 34	1	..	..	1	2	..	2	16	2
Room No. 35	1	..	..	1	2	..	2	16	2
Room No. 36	5	..	..	5	5	..	5	16	5
Toilet	..	1	..	1	1	..	1	16	1
Stairway	1	..	..	1	3	..	3	16	3
Room No. 37	1	..	..	1	3	..	3	16	3
Room No. 38	..	1	..	1	1	..	1	16	1
Room No. 39	1	..	..	1	1	..	1	16	1
Room No. 40	1	..	..	1	2	..	2	16	2
Room No. 41	1	..	..	1	2	..	2	16	2
Room No. 42	1	..	..	1	2	..	2	16	2
Room No. 43	1	..	..	1	2	..	2	16	2
Room No. 44	1	..	1	2	1	..	1	16	1
Room No. 45	2	..	2	4	2	..	2	16	2
Totals	22	2	3	27	41	..	41	..	41

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamp.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Surgical Out-Patients' Building.									
Basement.									
Room No. 1		3		3	3		3	16	3
Room No. 2		1		1	1		1	16	1
Room No. 3		1		1	1		1	16	1
Room No. 4		1		1	1		1	16	1
Room No. 5		1		1	1		1	16	1
Room No. 6		1		1	1		1	16	1
Room No. 7		1		1	1		1	16	1
Room No. 8		1		1	1		1	16	1
Room No. 9		1		1	1		1	16	1
Totals		11		11	11		11		11
First Floor.									
Room No. 10	1			1	4		4	16	4
Room No. 11	1			1	4		4	16	4
Room No. 12		1		1	1		1	16	1
Room No. 13	1	1		2	7		7	16	7
Room No. 14	1			1	5		5	16	5
Room No. 15	1			1	2		2	16	2
Carried forward	5	2		7	23		23		23

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	5	2	. .	7	23	. .	23	. .	23
Room No. 16	2	3	. .	5	11	. .	11	. .	12
Room No. 17	1	. .	. .	1	2	. .	2	16	2
Room No. 18	1	. .	. .	1	2	. .	2	16	2
Room No. 19	. .	1	. .	1	1	. .	1	16	1
Totals	9	6	. .	15	39	. .	39	. .	40
Second Floor.									
Room No. 20	. .	1	. .	1	1	. .	1	16	1
Room No. 21	. .	1	. .	1	1	. .	1	16	1
Room No. 22	. .	1	. .	1	1	. .	1	16	1
Room No. 23	. .	1	. .	1	1	. .	1	16	1
Room No. 24	. .	1	. .	1	1	. .	1	16	1
Room No. 25	1	. .	. .	1	2	. .	2	16	2
Room No. 26	. .	1	. .	1	1	. .	1	16	1
Room No. 27	. .	1	. .	1	1	. .	1	16	1
Totals	1	7	. .	8	9	. .	9	. .	9

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
NEW DORMITORY.									
Basement.									
Room No. 1 (Kitchen) .	2	2	. .	4	7	. .	7	16	7
Room No. 2	. .	1	. .	1	1	. .	1	16	1
Room No. 3	1	. .	. .	1	1	. .	1	16	1
Room No. 4	1	. .	. .	1	1	. .	1	16	1
Room No. 5	3	. .	. .	3	6	. .	6	16	6
Room No. 6 (Boiler-room) .	1	2	1	4	3	. .	3	16	3
Room No. 7	1	1	1	3	2	. .	2	16	2
Room No. 8	1	. .	1	2	1	. .	1	16	1
Room No. 9	3	. .	1	4	3	. .	3	16	3
Room No. 10 (Dining-room)	4	1	. .	5	9	. .	9	16	9
Room No. 11	1	. .	. .	1	2	. .	2	16	2
Room No. 12	1	. .	. .	1	2	. .	2	16	2
Totals	19	7	4	30	38	. .	38	. .	38
First Floor.									
Room No. 13	1	1	. .	2	3	. .	3	16	3
Room No. 14	. .	1	. .	1	1	. .	1	16	1
Room No. 15	. .	1	. .	1	1	. .	1	16	1
Room No. 16	1	. .	. .	1	1	. .	1	16	1
Carried forward . . .	2	3	. .	5	6	. .	6	. .	6

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless Sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	2	3	. .	5	6	. .	6	. .	6
Room No. 17	2	. .	1	3	2	. .	2	16	2
Room No. 18	. .	1	. .	1	1	. .	1	16	1
Room No. 19	. .	1	. .	1	1	. .	1	16	1
Room No. 20	1	. .	. .	1	2	. .	2	16	2
Room No. 21	3	. .	2	5	7	. .	7	16	7
Room No. 22	1	. .	. .	1	3	. .	3	16	3
Room No. 23	1	1	. .	2	2	. .	2	16	2
Room No. 24	. .	1	. .	1	1	. .	1	16	1
Room No 25	1	. .	. .	1	2	. .	2	16	2
Room No. 26	2	. .	1	3	4	. .	4	16	4
Room No. 27	1	. .	1	2	4	. .	4	16	4
Room No. 28	2	2	1	5	8	. .	8	16	8
Totals	16	9	6	31	43	. .	43	. .	43
Second Floor.									
Room No. 29	1	. .	. .	1	2	. .	2	16	2
Room No. 30	. .	1	. .	1	1	. .	1	16	1
Room No. 31	. .	1	. .	1	1	. .	1	16	1
Room No. 32	1	. .	. .	1	1	. .	1	16	1
Room No. 33	1	1	1	3	2	. .	2	16	2
Carried forward . . .	3	3	1	7	7	. .	7	. .	7

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets, Ceiling.	Lamp outlets, Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward	3	3	1	7	7	. .	7	. .	7
Room No. 34	. .	1	. .	1	1	. .	1	16	1
Room No. 35	. .	1	. .	1	1	. .	1	16	1
Room No. 36	1	. .	. .	1	2	. .	2	16	2
Room No. 37	3	. .	1	4	6	. .	6	16	6
Room No. 38	. .	1	. .	1	1	. .	1	16	1
Room No. 39	. .	1	. .	1	1	. .	1	16	1
Room No. 40	. .	1	. .	1	1	. .	1	16	1
Room No. 41	. .	1	. .	1	1	. .	1	16	1
Room No. 42	. .	1	. .	1	1	. .	1	16	1
Room No. 43	. .	1	. .	1	1	. .	1	16	1
Room No. 44	. .	1	. .	1	1	. .	1	16	1
Room No. 45	. .	1	. .	1	1	. .	1	16	1
Room No. 46	. .	1	. .	1	1	. .	1	16	1
Room No. 47	. .	1	. .	1	1	. .	1	16	1
Room No. 48	. .	1	. .	1	1	. .	1	16	1
Totals	7	16	2	25	28	. .	28	. .	28
Third Floor.									
Same as Second Floor.	7	16	2	25	28	. .	28	. .	28
Fourth Floor.									
Same as Second Floor.	7	16	2	25	28	. .	28	. .	28

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C.P. lamps.
OLD ENGINE-HOUSE AND LAUNDRY.									
First Floor.									
Room No. 1	1	2	..	3	5	..	5	16	5
Room No. 2 and doorway	1	1	3	5	4	..	4	16	4
Room No. 3, for lights in No. 6	..	..	1	1	..	..	..	..	..
Room No. 4	1	..	..	1	2	..	2	16	2
Room No. 5	2	..	..	2	4	..	4	16	4
Room No. 6	1	..	..	1	2	..	2	16	2
Room No. 7	2	..	..	2	4	..	4	16	4
Room No. 8	..	1	..	1	1	..	1	16	1
Room No. 9	..	1	..	1	1	..	1	16	1
Room No. 10	..	1	..	1	1	..	1	16	1
Room No. 11	5	..	1	6	5	..	5	16	5
Room No. 12	1	..	..	1	1	..	1	16	1
Room No. 13	3	..	..	3	7	..	7	16	7
Room No. 14	1	..	..	1	1	..	1	16	1
Room No. 15	..	1	..	1	1	..	1	16	1
Room No. 16	1	..	..	1	1	..	1	16	1
Room No. 17 and doorway	2	3	1	6	7	..	7	16	7
Underground bunkers	..	3	..	3	3	..	3	16	3
Totals	21	13	6	40	50	..	50	..	50

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16 C. P. lamps.
Second Floor.									
Room No. 22	1	. .	. .	1	1	. .	1	16	1
Room No. 23	1	. .	. .	1	1	. .	1	16	1
Room No. 24	1	. .	. .	1	1	. .	1	16	1
Room No. 25	1	. .	. .	1	1	. .	1	16	1
Room No. 26	1	. .	. .	1	1	. .	1	16	1
Room No. 28	1	4	1	6	5	. .	5	16	5
Room No. 29	1	. .	. .	1	1	. .	1	16	1
Room No. 30	1	. .	.	1	1	. .	1	16	1
Room No. 31	1	. .	. .	1	1	. .	1	16	1
Room No. 32	1	. .	. .	1	1	. .	1	16	1
Room No. 33	1	. .	. .	1	1	. .	1	16	1
Room No. 34	1	. .	. .	1	2	. .	2	16	2
Totals	12	4	1	17	17	. .	17	. .	17
Second Floor.									
Room No. 18	2	. .	. .	2	8	. .	8	16	8
Room No. 19	1	. .	. .	1	1	. .	1	16	1
Room No. 20	1	1	. .	2	4	. .	4	16	4
Room No. 21	2	1	. .	3	9	. .	9	16	9
Totals	6	2	. .	8	22	. .	22	. .	22

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, C.P. of lamps.
KITCHEN AND BAKERY.									
Room No. 1	. .	8	. .	8	8	. .	8	16	8
Room No. 2	1	. .	. .	1	1	. .	1	16	1
Room No. 3	2	1	. .	3	3	. .	3	. .	4
Room No. 4	7	1	1	9	15	. .	15	. .	16
Room No. 5	. .	1	. .	1	1	. .	1	16	1
Room No. 6	1	. .	. .	1	2	. .	2	16	2
Corridors	2	2	1	5	5	. .	5	16	5
Totals	13	13	2	28	35	. .	35	. .	37

SUMMARY.

Ward A.									
Basement	10	12	1	23	31	. .	31	. .	32
First floor	27	30	11	68	89	. .	89	. .	89
Second floor	15	8	2	25	29	. .	29	. .	29
Wards B, C, D.									
Basement	13	13	. .	26	26	. .	26	. .	26
First floor	12	28	3	43	45	. .	45	. .	51
Second floor	11	28	3	42	39	. .	39	. .	46
Third floor	7	27	3	37	38	. .	38	. .	45
Carried forward	95	146	23	264	297	. .	297	. .	318

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.-P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	95	146	23	264	297	. .	297	. .	318
Ward E.									
Basement	10	12	1	23	31	. .	31	. .	32
First floor	27	30	11	68	89	. .	89	. .	89
Second floor	15	8	2	25	29	. .	29	. .	29
Wards F, G, H.									
Basement	13	13	. .	26	26	. .	26	. .	26
First floor	12	28	3	43	45	. .	45	. .	51
Second floor	11	28	3	42	39	. .	39	. .	46
Third floor	7	27	3	37	38	. .	38	. .	45
Wards K and L.									
Basement	. .	22	. .	22	22	. .	22	. .	22
Ward K	6	39	1	46	55	. .	55	. .	69
Ward L	4	46	2	52	63	. .	63	. .	87
Medical Building									
Basement	14	25	3	42	59	. .	59	. .	61
First floor	14	36	2	46	63	. .	63	. .	64
Second floor	9	36	1	46	57	. .	57	. .	57
Third floor	11	30	4	45	58	. .	58	. .	62
Ward P.									
Basement	11	. .	. .	11	16	. .	16	.	16
First floor	13	19	4	36	41	. .	41	. .	41
Second floor	4	2	. .	6	9	. .	9	. .	9
Carried forward . . .	276	541	63	880	1037	. .	1037	. .	1124

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C. P. lamps.
Brought forward . . .	276	541	63	880	1037	. .	1037	. .	1124
Ward T.									
Basement	11	. .	. .	11	16	. .	16	. .	16
First floor	13	19	4	36	41	. .	41	. .	41
Second floor	4	2	. .	6	9	. .	9	. .	9
Administration Building.									
Basement	31	16	1	48	77	. .	77	. .	78
First floor	11	34	10	55	86	. .	86	. .	86
Second floor	10	21	6	37	55	. .	55	. .	56
Third floor	9	9	1	19	27	. .	27	. .	29
M, O, P, D,									
Basement	10	8	. .	18	18	. .	18	. .	18
First floor	12	13	2	27	54	7	61	. .	65
Second floor	12	9	. .	21	53	. .	53	. .	53
Third floor	22	2	3	27	41	. .	41	. .	41
S, O, P, D,									
Basement	. .	11	. .	11	11	. .	11	. .	11
First floor	9	6	. .	15	39	. .	39	. .	40
Second floor	1	7	. .	8	9	. .	9	. .	9
Engine-house and Laundry.									
First floor	21	13	6	40	50	. .	50	. .	50
Second floor	18	6	1	25	39	. .	39	. .	39
Carried forward . . .	470	717	97	1284	1662	7	1669	. .	1765

LOCATION SHEET. — *Continued.*

Location.	Lamp outlets. Ceiling.	Lamp outlets. Side.	Switch outlets.	Total outlets.	Key sockets.	Keyless sockets.	Total lamps.	C.P. of lamps.	Equivalent number, 16-C.P. lamps.
Brought forward . . .	470	717	97	1284	1662	7	1669	. .	1765
Library Building.									
Basement	11	5	. .	16	31	. .	31	. .	31
First floor	7	10	7	24	28	18	46	. .	46
Dormitory.									
Basement	19	7	4	30	38	. .	38	. .	38
First floor	16	9	6	31	43	. .	43	. .	43
Second floor	7	16	2	25	28	. .	28	. .	28
Third floor	7	16	2	25	28	. .	28	. .	28
Fourth floor	7	16	2	25	28	. .	28	. .	28
Kitchen and Bakery . .	13	13	2	28	35	. .	35	. .	37
Totals	557	809	122	1488	1921	25	1946	. .	2044

Part No. 5.

TELEPHONE SYSTEM.

Said Contractor shall furnish and install all distributing boards, cables, wires, insulators, supports, cut-outs, mouldings, and all other materials necessary for a complete metallic circuit telephone system of 67 stations. The main switchboard and the telephones will be furnished by said City, and shall be set up and connected by said Contractor.

The approximate location of telephones, cables, distributing boxes, etc., are given on the plans.

Telephones are indicted by "T."

Distributing boxes are indicated by D, D–1, – – – – – D–10.

DISTRIBUTING BOARDS.

The following list gives the capacities of distributing boards to be furnished and set up by said Contractor at points D, D–1, D–2, – – – – D–10.

D	. . . .	100 Circuits.
D–1	. . . .	18 "
D–2	. . . .	6 "
D–3	. . . .	16 "
D–4	. . . .	10 "
D–5	. . . .	5 "
D–6	. . . .	8 "
D–7	. . . .	14 "
D–8	. . . .	25 "
D–9	. . . .	13 "
D–10	. . . .	5 "

The board at D shall be furnished with fuses and lightning arresters for each wire. A design for these boards shall be submitted to said Architect for approval. All boards except

at D shall be placed in neatly finished cabinets furnished with Yale locks, all locks shall be operated by the same key and a key furnished for each box.

CABLES.

The main switchboard shall be connected by suitable cables with the main distributing board at D. Cables shall be run between distributing boards of the following sizes:

D	to D–1	. . . .	18 Pairs.
D–1	" D–2	. . . .	6 "
D	" D–3	. . . .	18 "
D–3	" D–4	. . . .	10 "
D–4	" D–5	. . . .	5 "
D	" D–6	. . . .	8 "
D	" D–7	. . . .	14 "
D	" D–8	. . . .	25 "
D–8	" D–9	. . . .	13 "
D–9	" D–10	. . . .	5 "

All cables shall be made up of double-covered No. 18–B. & S. copper wires, compactly cabled together and protected by rubber tape and an outside braid. The make of cable which the Contractor wishes to use must be specified in his proposal and a sample shall be submitted to said Architect for approval.

METHOD OF RUNNING CABLES.

Cables shall be run in pipe ducts on glass or porcelain insulators except between D–4 and D–5.

From D–4 the cable shall be run out to the end of the trench, then up west wall and then close to the ceiling of the basement on porcelain insulators, to the point where the underground conduit leaves the building. It shall be pulled through the conduit and run on porcelain insulators to D–5.

TAP CIRCUITS.

All wiring for tap circuits shall be run as far as possible in the pipe trenches on glass or porcelain insulators. Between the Surgical Pavilion and Surgical Out-Patients' Department, between the Medical Pavilion and Nurses' Home, and between D–7 and the Open Ward, they shall be pulled through underground conduits.

All wiring outside of trenches, except in buildings hereafter mentioned, shall be done in moulding and the wires shall be run in basements as far as possible, leaving straight rises to the instruments, care being taken that the completed work shall be as inconspicuous as possible.

All the buildings in the Contagious Hospital, the Open, and New Surgical Wards and Pathological building in the hospital proper and the new boiler-house have been tubed for telephones, and the wires shall be run in moulding to the ends of the tubes and pulled through.

WIRE.

All wires other than cables specified above shall be No. 18 B. and S. office wire.

MOULDING–WORK.

All moulding is to be of the same kind of wood as that used in the finish of the room in which it is used, or if the finish is painted the moulding shall be of white wood painted to match. If not previously impregnated with paraffin or other moisture repellent the moulding is to be shellaced or painted inside and out with water-proof paint, an additional coat being put on after the capping is in place.

WIRING ON INSULATORS.

Insulators shall be of glass or porcelain held in place by screws and provided with suitable blackboards or other supports where necessary. They shall be placed not more than three

feet apart and so that there shall be at least three-quarters of an inch clear air space around each wire.

INSULATION RESISTANCE.

The insulation resistance from the ground of the entire system, including distributing boards and excluding main switchboard and instruments, shall be at least 100,000 ohms, and the insulation resistance between any wire and the rest of the system shall also be 100,000 ohms.

LOCATION OF INSTRUMENTS.

The following lists show the number of telephones on each distributing board and in each building:

HOSPITAL PROPER.

D	8
D—1	8
D—2	4
D—3	6
D—4	3
D—5	3
D—6	6
D—7	10
	48

CONTAGIOUS HOSPITAL.

D—8	9
D—9	6
D—10	4
	19

HOSPITAL PROPER.

ADMINISTRATION BUILDING.

Room No. 10, Basement — Steward's Office.

Room No. 12, Basement — Dispensary.

Room No. 26, First Floor — Hall.
Room No. 27, First Floor — General Office.
Room No. 30, First Floor — Superintendent's Office.
Room No. 35, Second Floor — Supt's Private Rooms.
Main switchboard, room No. 27 7

WARD A.

Same location as at present 1

WARDS B, C, D.

Room No. 19, First Floor — Duty Room.
Room No. 40, Second Floor — Duty Room.
Room No. 50, Third Floor — Duty Room. . . . 3

WARD E.

Same location as at present 1

WARDS F, G, H.

Same as Wards B, C, D. 3

WARDS K, AND L.

Room No. 25, First Floor — Hall.
Room No. 41, Second Floor — Hall. 2

WARDS M, N, O.

Basement — Supervisor's Room.
Basement — Accident Wards.
Room No. 17, First Floor — Supervisor's Room.
Corridor, First Floor.
Room No. 5, Second Floor — House Officer's Room.
Room No. 8, Second Floor — Night Surgeon's Room.
Room No. 13, Second Floor — Duty Room.
Room No. 15, Third Floor — Duty Room . . . 8

WARD P.

Room No. 11 — Duty Room 1

WARDS Q, R, S.

Room No. 5, Basement — Housekeeper.
Room No. 16, First Floor — Medical Supervisor.
Room No. 24, First Floor — Medical House Officers'.
Room No. 21, First Floor — Duty Room.
Room No. 38, Second Floor — Duty Room.
Room No. 53, Third Floor — Duty Room . . . 6

WARD T.

Room 11 — Duty Room. 1

OPEN WARD.

Ward Office — Third Floor.
Ward Office — Second Floor 2

MEDICAL LIBRARY

Room No. 3, Basement — Officers' Dining-room.
Basement — Kitchen.
Room No. 7, First Floor — Pamphlet Room . . 3

ENTRANCE OFFICE BUILDING.

Room No. 12, First Floor — Office.
Room No. 36, Third Floor — Hall 2

S. O. P. D.

Room No. 16, First Floor — General Waiting-room. . 1

PATHOLOGICAL BUILDING.

Main Corridor 1

LAUNDRY BUILDING.

Room No. 7, First Floor — Engine-room.
Room No. 11, First Floor — Laundry 2

NEW DORMITORY

Room No. 26, First Floor — Hall 1

NEW BOILER-HOUSE.

Dynamo-room 1
Stable 1

NIGHTINGALE, No. 57 E. SPRINGFIELD STREET, 1

Total 48

There is already an overhead line to the Nightingale from Administration building which will be used for the new telephone which will be installed in place of the present one.

CONTAGIOUS HOSPITAL.

ADMINISTRATION BUILDING.

Physician's Office 1
Domestic Building — First Floor — Hall . . . 1
Laundry Building — First Floor — Hall . . . 2
Dormitory Building — First Floor — Hall . . . 2

WARD NO. 1

3 Duty Rooms on First Floor.
3 Duty Rooms on Second Floor 6

WARD NO. 2.

3 Duty Rooms on First Floor.
3 Duty Rooms on Second Floor 6

GATE LODGE 1

Total 19

Said Contractor shall conform strictly to the above specifications and the plans for the work, subject to any change which may be made therein as aforesaid, but shall follow figure dimensions in preference to scale dimensions, and shall construct all detail work in accordance with drawings to be furnished by said Architect.

(3.) Said Contractor shall not assign or sublet the work, or any part thereof, without the consent thereto in writing of said Architect; shall commence the work within five days after the date hereof; and shall carry it on at such points and in such order as may from time to time be directed by, and with progress satisfactory to, said Architect, and shall complete the work on or before 1895; provided, however, that in case of a delay caused by a strike of workmen employed on said work, additional time, equal to such delay, shall be allowed for such completion.

(4.) Said Contractor shall comply with all acts of the Legislature, all ordinances of the city, and all rules and regulations of public authorities, controlling or limiting the method of, the materials to be used in, or the actions of those employed in, doing such work, especially those relating to the erection and construction of buildings in the City of Boston; and if the specifications or plans show any discrepancy in respect to the requirements of any of said laws or ordinances, the rules of the Wire Commissioner, and the Boston Fire Underwriters' Union, every such discrepancy must be at once reported to said Architect, and any other discrepancy or error noticed by the Contractor must be reported by him at once to said Architect.

(5.) Said Contractor shall have sole possession, charge, and direction of the work until its completion, but shall permit said Architect and his superintendent or any person designated by said Architect, to enter upon and inspect the work at all times and places, and shall provide safe and proper facilities for such entry and inspection, and shall see that all employees carry

out any directions of said Architect, superintendent, or person designated as aforesaid, given during the absence of said Contractor in working hours; provided that the directions given as aforesaid do not involve any addition or deduction from the contract price.

(6.) Said Contractor shall give his personal superintendence to the execution of the work, and shall employ a competent foreman, who shall at all times be present while any work is being done at the building; shall dismiss any employee if the said Architect so requests in writing; and shall not again employ or allow to be employed on the work, any employee so dismissed; shall take out at his own expense all necessary permits from the municipal or other public authorities, give all notices required by law or ordinance, and pay all fees or charges incident to the prosecution of the work; shall from the beginning of twilight through the whole of every night, place and maintain over or near any place used by him, and over or near any material placed or used by him, a light or lights sufficient to protect travellers from injury; shall permit other contractors or employees of the city to prosecute their work, and shall render them all necessary assistance; shall clean away all dirt and rubbish caused by his operations, as often as requested by said Architect; shall leave the premises on the acceptance of the work, free from dirt and rubbish, and in a clean and neat condition to the satisfaction of said Architect; and shall return all plans and drawings to said Architect on the acceptance of the work, the same to be the property of the city. Said Architect shall select all materials used in extra work when he shall so desire, and said Contractor shall pay the bills for the same.

(7.) Said Contractor shall make good all defects or omissions or mistakes made by him or his employees, within three days after a written notice so to do, signed by said Architect, has been given or mailed to said Contractor, whether during the progress of the work, or within six months after the date of the

acceptance of the work determined as hereinafter provided, notwithstanding that inspections thereof may have been made by said Architect or other officer of the city, or that payments may have been made, certificates of payment given, or possession or acceptance of the work taken by the city, and shall pay all damages sustained by said city or any person in consequence of said defects, omissions, or mistakes, or the making good thereof, within three days after a written notice so to do, signed by said Architect, has been given or mailed to said Contractor.

(8.) Said City, — if said Architect shall give or mail to said Contractor a notice by said Architect, that said Architect is of opinion that said Contractor has abandoned said work, or has neglected to make good any defect or omission or mistake therein made as aforesaid, or that said Architect is dissatisfied with said work, or any part thereof, or with the materials furnished, or any part thereof, or with the progress of the work, — may by or through said Architect, at the expiration of three days after the date of giving or mailing such notice, declare the contract broken and take possession of the entire work, or may do any work or furnish any materials specified in the notice, and use any implements, tools, and materials he may deem necessary therefor, whether entering into any completed work, or being used in or about the work, or otherwise acquired, and said Contractor shall pay the expenses of doing such work and of furnishing such materials.

(9.) Said Contractor shall indemnify and save harmless said City from all claims against it, relating to liens, to labor done or materials furnished, or to injuries or damages to any person or corporation or department of the city, received or sustained by or from said Contractor or his employees, in the doing of said work, or in consequence of any improper materials, implements, or labor used therein, or by or in consequence of any act, omission, or neglect of said Contractor or his employees, and shall bear all losses arising from the amount or

character of the work, the nature of the land in or on which any work is done, the weather, elements, or otherwise.

(10.) Said Contractor shall, from and after the time the first bill for a payment on account is approved by said Auditor until the date of the completion of the work, keep deposited with the City Auditor an insurance policy satisfactory to said Architect, payable to said city to the amount of all moneys paid or due to said Contractor.

(11.) Said Contractor shall before the twentieth day of the month following that during which any extra work is done, or materials furnished or damages sustained by him, file with the City Architect and with the City Auditor a claim for such extra work or materials or damages, and shall, when requested by the City Architect so to do, file an itemized statement of and vouchers for the quantities and prices of such work or materials or damages.

(12.) Said Architect shall be referee to estimate and determine the amount, quality, and value of all work and materials to be paid for under this contract, and to determine all questions which may arise relating to the same, and his estimates and determinations shall be final, and be binding upon the parties hereto.

(13.) Said city shall pay to said Contractor for everything furnished, or done by, or resulting to him in carrying out this contract, the sum of

_____

_____ (_____)

dollars, and said contract price may be increased or decreased only as follows:

(*a*) For extra work or increase of work in consequence of alterations made under an order in writing of said Architect, said city shall pay to said Contractor a price fixed by said

Architect, with the approval of the Mayor of said city in writing, and no such claim shall be paid or allowed unless the claim is filed as provided in clause (11) and the price fixed as herein provided.

(*b*) For any damages actually sustained by said Contractor on account of any decrease in the quantity of the work, resulting from any change made under an order in writing of said Architect, or on account of any act or neglect of said city, its departments or employees, said city shall pay to said Contractor a sum fixed by said Architect, with the approval of the Mayor of said city in writing, and no such claim shall be paid or allowed unless the claim is filed as provided in clause (11) and the sum fixed as herein provided.

(*c*) For any expense saved the Contractor by any change made under an order in writing of said Architect said city shall deduct a sum fixed by said Architect, with the approval of the Mayor in writing.

(14.) Said city shall keep for its own, out of any moneys at any time in its possession due to said Contractor, the amount of all expenses for work done, or materials furnished by it under this contract, and out of the remaining moneys shall monthly pay to said Contractor while carrying on said work, so far as there shall be sufficient money remaining to pay the same, seventy-five per cent. of the value of the work done and materials furnished by him to the twentieth day of the month, less all payments made and all amounts kept as aforesaid; and on the last monthly payment, to be made thirty-one days after the date of the acceptance of the work, as specified by said Architect on the bill on which such payment is made, shall pay to said Contractor the balance of the money due him; provided, however, that said city may retain for six months after said date, and until said Architect is satisfied that all claims against said city, its officers or agents specified in this contract, and all claims filed in the office of the City Clerk of said city for labor or materials for said

work, have been settled, an amount of money equal to five per cent. of the total value of all work done and materials furnished, and so much more as said Architect shall be of opinion may be required to settle said claims.

(15.) Said city shall not be liable for, or make any compensation to, said Contractor, except as provided in the preceding clause, and on making the last monthly payment aforesaid, shall be released from all claims or liabilities under this contract, or on account of any alterations or changes thereof, or for any work done thereunder, or relating to said furnishing, building, and installation of electric-light plant, etc., or for any act or neglect of said city, or of any person, relating to or affecting said work, except for the remainder, if any there be, of the amount retained under the preceding clause.

Signed this _____ day of _____ 1894.

CITY OF BOSTON,
By

_____

City Architect of said City.

_____

Contractor.

Approved:

_____

Mayor of said City.

Know all men by these presents,

That we _____

_____

_____

_____

as principal, and _____

_____

_____

_____ as sureties, are held and firmly bound unto the CITY OF BOSTON, in the sum of _____ dollars, lawful money of the United States of America, to be paid to said City or its representatives, for which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, firmly by these presents.

The Condition of this obligation is,

That if the said principal shall well and truly keep and perform all the terms and conditions on his part to be kept and performed, of a contract made by said principal with said City, bearing date _____, 1895, for the furnishing, building, and installation of electric-light plant, etc.,

and shall indemnify and save harmless said City, as therein stipulated, then this obligation shall be null and of no effect, otherwise it shall remain in full force and virtue.

Signed, sealed, and delivered this_____ day of _____, 1894.

_____ (Seal.)

_____ (Seal.)

_____ (Seal.)

_____ (Seal.)

Signed and Sealed in the presence of

_____

_____

_____

Form and execution of contract and bond approved.

_____

_____

Boston Public Library
Central Library, Copley Square

Division of
Reference and Research Services

The Date Due Card in the pocket indicates the date on or before which this book should be returned to the Library.

Please do not remove cards from this pocket.